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**NATIONAL SCIENCE FOUNDATION**

**Before the House Commerce, Justice, Science Appropriations Subcommittee**

Mr. Chairman and Members of the Subcommittee, I appreciate this opportunity to discuss the Office of Inspector General's (OIG) work to promote the efficiency and effectiveness of the National Science Foundation's (NSF) programs and operations and to safeguard their integrity. My office is committed to providing rigorous, independent oversight of NSF, and I welcome the chance to discuss some of the top management challenges facing the Foundation we have identified, as well as some reviews our office is conducting of NSF's operational expenses.

Background

NSF is the funding source for approximately 20 percent of all federally supported basic research in science and engineering conducted by the nation's colleges and universities. In many areas, such as mathematics and computer science, NSF is the major source of federal backing. The Foundation funds approximately 10,000 new awards each year, thereby fulfilling its mission to promote the progress of science. Proposals for funding are assessed by panels of experts as part of NSF's merit review process. Awards are made primarily as grants, with some large cooperative agreements and contracts, and go to individuals and small groups of investigators, as well as to research centers and facilities where scientists, engineers, and students undertake research projects. The Foundation also funds major research equipment such as telescopes, Antarctic research sites, and high-end computer facilities.

In FY 2010, NSF was appropriated approximately $7 billion to carry out the agency's programs and operations. In addition, the agency received $3 billion in Recovery Act funds in 2009; as of February 4, 2011, it has expended approximately $992 million of that amount.

The OIG is an independent entity and reports directly to Congress and the National Science Board. Our mission is to conduct independent audits and investigations of National Science Foundation programs and operations and to recommend policies and corrective actions to promote effectiveness and efficiency and prevent and detect waste, fraud, and abuse. Consistent with our statutory mandate, the OIG has an oversight role and does not determine policy or engage in management activities involving the Foundation or program operations. Thus, my office is not responsible for managing any NSF programs, nor do we attempt to assess the scientific merit of research funded by the Foundation.

The OIG has two main components: the Office of Audit and the Office of Investigations. The Office of Audit is responsible for the annual audits of NSF's financial statements and the annual review of information system security. The office also conducts financial and compliance audits of grants, contracts, and cooperative agreements funded by NSF. Further, we monitor management functions that may pose significant financial or programmatic risks. In determining

priorities, we consider the results of prior audits and consult with the Foundation's senior management, the National Science Board and Congress, and with the Office of Management and Budget and members of the research community supported by the Foundation. In selecting areas for audit, we assess factors such as the risk involved in the activity, the potential for monetary recovery for the government, and the potential for the greatest substantive benefit for NSF.

The Office of Investigations is responsible for investigating possible wrongdoing involving NSF programs and operations, agency personnel, and organizations or individuals who submit proposals to, receive awards from, or conduct business with NSF. We focus our investigative resources on the most serious cases, as measured by such factors as the amount of money involved, the seriousness of the alleged criminal, civil or ethical violations, and the strength of the evidence. When appropriate, the results of these investigations are referred to the Department of Justice for possible criminal prosecution or civil litigation, or to NSF for administrative resolution.

NSF Top Management Challenges

In accordance with the Reports Consolidation Act of 2000, each year the OIG identifies what it considers to be the most serious management and performance challenges facing NSF. The top management challenges are areas that reflect fundamental program risk and are likely to require NSF's attention for years to come. Since the agency's primary mission activity is accomplished through funding external awardees, the success of NSF's overall mission and the achievement of its goals are largely dependent on effective grant and contract administration. Accordingly, my testimony will focus on two of the six top management challenges facing NSF in FY 2011: improving grant administration and strengthening contract administration.

Improving Grant Administration

In 2010, NSF funded more than 55,000 active awards involving over 2,100 institutions. Many of these awards were funded all or in part with Recovery Act monies. In light of the fact that most of those awards are made as grants, it is essential that the Foundation's grants management processes be robust enough to ensure the highest level of accountability and stewardship in its external awards portfolio. In particular, those processes should enable the agency to engage in effective oversight throughout the lifecycle of an award.

Previous OIG audits of NSF's operations have found that the Foundation needs to improve its oversight of awardees' financial accountability, programmatic performance, and compliance with applicable federal and NSF requirements. Over time, NSF has worked to address those concerns. Among other things, in 2004 it commenced an Award Monitoring and Business Assistance Program (AMBAP) designed to provide advanced monitoring activities to ensure that awardee institutions possess adequate policies, processes and systems to manage their NSF awards. Through this program, NSF assesses its awardees' capacity to administer NSF-issued awards in compliance with federal regulations and evaluates awardee performance in specific high-risk award administration areas. Since many institutions receive more than one award, the assurance that comes from the advanced monitoring activities is intended to increase the likelihood that the awardees will effectively administer all NSF-issued awards. Activities

conducted under this advanced monitoring program include desk reviews, site visits and, for large facilities, business system reviews.

As designed, this program provides NSF with three different ways of ensuring strong oversight. In practice, though, the program's effect is limited: in 2010, only a fraction of the institutions receiving NSF funding (approximately 7 percent) received an AMBAP desk review or site visit, or a business system review. In addition, in FY 2010 NSF performed 20 percent fewer site visits than it conducted in FY 2009 -- 24 instead of 30. NSF indicated that this decrease was due to staffing constraints. While it should be noted that NSF did increase the number of desk reviews it conducted in 2010 (up to 120 from 110 in 2009), site visits provide the agency with significantly more information that it needs to oversee awards. In this time of increased concern about accountability in federal programs, it will be a continuing challenge for the agency to find new and cost-effective ways to ensure that recipients, especially high risk ones, are accomplishing their goals and expending their federal funds in compliance with grant terms and conditions. If the Foundation's budget continues to grow, the resulting increase in awards to monitor will compound this challenge.

OIG also has an important oversight role, but given the breadth of our mission, we can only review a small number of awards each year. We are currently developing a data analytic capacity and improved forensic financial skills that should enable us to better identify awards with the most risk and thus more effectively leverage our limited staff resources. As we refine our approach, we will share our techniques with NSF management so it can utilize them to enhance its oversight capability. We are also expanding our outreach to NSF and the research community to ensure that agency staff and awardees understand the rules that apply to them. Finally, we are continuing to focus efforts on proactive reviews that help us identify grant fraud that might otherwise go undetected and deter fraudulent behavior.

Strengthening Contract Management

In addition to grant administration, we have devoted considerable attention to contract administration at NSF -- a long-standing management challenge for the Foundation. In recent years, we have focused on the agency's efforts to manage and re-compete its largest contract -- that for the operation of its Antarctic research sites. In addition, we have placed particular emphasis on the agency's management of cost-reimbursement contracts. We have focused on this area because of the risk associated with this type of contract, the substantial amount of money NSF expends annually on contracts of this type, and the significant deficiency in the monitoring of cost reimbursement contracts cited in the Foundation's FY 2009 and 2010 financial statement audits.

NSF obligated approximately $422 million for contracts in FY 2010. Of that amount, two-thirds (or $283 million) was obligated for cost reimbursement contracts. Cost reimbursement contracts are considered high-risk because of the potential for cost escalation and because the contractor's costs for performance are paid regardless of whether the work is completed. Compounding the risk, of the amounts NSF obligated for cost reimbursement contracts in 2010, over 70 percent (or $204 million) was on contracts that permit advance payments to three of NSF's largest contractors.

Advance payments increase NSF's risk because the Foundation pays contractors before they incur costs. The Foundation's risk is further increased if it approves advance payments to contractors without knowing if they have adequate accounting systems or approved disclosure statements explaining their accounting practices and whether costs will be treated as direct or indirect. Of the three contractors that receive advance payments, none has an approved disclosure statement. As a result, NSF does not have an agreement with the contractors as to how they will classify and charge direct and indirect costs. In addition, only one contractor has an accounting system that has been deemed adequate recently by Defense Contract Audit Agency (DCAA) auditors. When contractors do not have adequate accounting systems, NSF lacks assurance that costs on its cost reimbursement contracts are being properly accumulated and billed. Given the amount of money it expends on these contracts, the risk of fraud, waste, and abuse by NSF contractors will continue to be high until NSF implements fully adequate cost surveillance procedures.

The agency has made some progress on improving contract management. It has developed policies and procedures for cost-reimbursement contracts, although they were implemented too late for their effectiveness to be assessed as part of the 2010 financial statement audit. It has also recently hired a new executive to provide leadership over the contracting staff. Finally, it has entered into an agreement with DCAA whereby DCAA will provide much-needed audits of agency contracts, including proposals for the Antarctic logistics contract. While these are important steps, the risks presented in this area remain significant, and contract management will likely continue to be a challenge to the agency for some time.

Controls over Contingency Funds

NSF requires contingency estimates in the budgets of large Major Research Equipment and Facilities Construction projects in an effort to ensure that actual costs do not exceed planned costs. The approved budgets for these projects serve as the basis upon which awardees can draw down funds over the course of an award. Control of contingencies in these budgets is an emerging challenge for the Foundation.

In two recent audits of cooperative agreement proposals for large construction projects, DCAA found that the awardees' budgets contained more than $169 million of unallowable contingency costs. These costs comprised 25 percent of the combined award amounts, which totaled $684 million. It is significant to note that $55 million, or one-third of the $169 million in contingencies consisted of funds awarded under the Recovery Act.

In both of the audits cited above, the auditors were further concerned by the lack of controls over the contingency funds. Although NSF allows contingency funds to be held by the awardees' project officers for allocation during the construction phase, DCAA found that the awardees could draw down the contingency funds at any point in the project just as they would normal funds, and that no barriers existed to prevent the funds from being drawn down in advance and used for purposes other than contingencies. As a result, there is an increased risk of fraud or misuse of these funds.

We recommended that NSF require the awardees to remove unallowable contingencies from their proposed budgets and that NSF stop its current practice of allowing awardees to manage

contingency funding. We recognize that the identification of funds needed for contingencies is an important part of project management; however, we are concerned by the risk associated with the approach NSF is taking. To protect federal funds set aside for contingencies, we have therefore recommended that NSF, not awardees, control the release of contingency payments for unforeseen events. NSF should implement procedures so that it controls contingency funds and does not release them until the awardee has demonstrated to NSF that the funds are needed to meet a project requirement.

We are currently working with NSF to resolve the contingency-related findings. Because of the large dollar amounts associated with contingencies in NSF awards, the risk we see posed by the agency's current process of funding these costs, and the complexity of the issue, we have started additional audit work that focuses broadly on NSF's use of contingencies in its awards.

NSF Expenses for Internal Operations

While much of my office's effort focuses on funds NSF provides to third parties in grants, cooperative agreements and contracts, we also examine how NSF spends money *internally* for its own operations and activities. In light of the current economic climate, it is essential that these expenses be reviewed to identify opportunities for cost savings or funds that can be put to better use within the Foundation. In this vein, we recently examined expenditures in two areas, refreshments provided to individuals participating in meetings at NSF and travel expenses under NSF's Independent Research and Development program -- both of which might yield cost savings with additional oversight and control.

Refreshment Purchases for Meetings

The Federal Travel Regulation states that agencies may provide light refreshments to agency employees attending an official conference. NSF's Office of General Counsel advises that meetings of review panels, advisory committees and Committees of Visitors fall within the definition of a conference. Our recent review of charges on NSF purchase cards for refreshments for merit review panelists and others attending meetings at NSF identified nearly $500,000 in food-related payments in both 2008 and 2009. NSF pays for these refreshments out of program funds, in addition to the flat-rate or per diem compensation it provides to attendees to cover their expenses. The flat rate compensation is $480 for each meeting day and $280 for each travel day to cover an honorarium, hotel, local travel, and all meals. The per diem rate includes $71 for meals and incidentals, in addition to lodging and travel expenses.

We examined expenditures associated with the substantial flow of food and beverages daily into NSF from a wide variety of vendors to determine the potential for fraud, waste, and abuse. Of the 110 purchases we reviewed, one fourth exhibited at least one typical fraud indicator, including late pre-approvals, inconsistent pre-approvals and invoices, late payment of invoices, handwritten changes to otherwise printed invoices, white-out on invoices, or late changes to already placed orders. In addition, we identified an NSF staff member who caused a relative's company to receive the refreshment orders for three review panel meetings, violating conflict of interests rules.

Pursuant to GSA guidance, prices paid for refreshments must be considered fair and reasonable, and purchases must be equitably distributed among suppliers. We found that there is no

Foundation-level oversight or coordination of refreshment purchases, no general definition of what is "reasonable" for refreshment purchases, no uniform guidance to ensure consistent refreshment purchase decision-making within and across NSF divisions, and no purchase card training specific to refreshment purchases. As a result, refreshment purchase practices vary widely across the Foundation. While the majority of NSF organizations purchase food for panels and other activities from vendors in the area near NSF in Arlington, nearly a quarter of such purchases were made from more distant vendors, which sometimes added additional delivery charges. Other situations our analysis revealed included: wide ranges in per-person prices paid for similar products; instances in which purchases were made of substantial food that could be viewed as a meal and not light refreshments; cases where offices purchased virtually all refreshments from a single vendor; and some purchases that appeared to directly contravene GSA and NSF guidance.

Although we ultimately did not find fraud in the transactions we examined, the large number of indicators and divergent or inconsistent practices we identified strongly suggests that NSF would benefit from a more centralized purchasing process.

We recommended that NSF assess whether it is a prudent use of federal funds to spend nearly a half-million dollars a year to provide extensive mid-morning and mid-afternoon refreshments for meeting attendees, in addition to the compensation they are already receiving for meals. If NSF chooses to continue providing food, we recommended that the agency centralize its provision of refreshments to improve control over the process and ensure it is carried out reasonably, consistently, and responsibly. A consolidated process could result in substantial savings, if NSF chooses to continue providing refreshments.

Travel Expenses under NSF's Independent Research/Development Program

NSF's Independent Research/Development (IRD) program provides an important benefit to qualified agency employees, allowing them to stay involved in their research while working at NSF. The program does this, in part, by providing travel funds to permit Visiting Scientists, Engineers and Educators (VSEEs) and Intergovernmental Personnel Act appointees (IPAs) to travel to and from their home institutions, participate in activities at other institutions, and attend domestic and international conferences. It also permits other employees to engage in active research programs.

IRD participants must submit plans describing, among other things, the work they will be conducting and its estimated costs. This information is required so that NSF officials will be able to identify possible conflicts of interests that could result from the IRD work, and so they can ensure that actual IRD travel is consistent with approved IRD plans.

Investigative staff in my office recently reviewed the use of IRD travel by VSEEs and IPAs at NSF in an effort to assess the potential for fraud within that program. We found that there is no centralized means to review IRD budgets, and therefore no convenient way for NSF managers to compare actual IRD expenditures to plans or budgets, or assess the use of IRD travel across the Foundation's various directorates or divisions. In fact, we found that NSF could not tell, without substantial effort, how much it spent annually on IRD travel, or how much time NSF IPAs and VSEEs spent on such work. Further, in the sample we examined we found that some participants used IRD funds for trips and conferences that were not referenced in their plans, some took more

trips or longer trips than proposed, and others failed to provide sufficient detail on conference travel. Some of the individuals in our sample used IRD funds for activities not related to the IRD plan, while others spent more on travel than proposed.

Because of the significant internal control issues identified in the sample we examined, we are currently conducting an audit of the IRD program to evaluate the effectiveness of NSF's oversight of the IRD program. In addition, to ensure that IRD funds are appropriately expended and to improve the efficiency and oversight of the IRD program, we recommended that NSF examine all IRD plans and associated travel records for the past year to determine if the travel was IRD related and within the scope of the plan, and whether the actual travel costs are consistent with what was proposed. In response, NSF's Office of the Director asked the Office of Information and Resource Management to form a task group charged with strengthening oversight and accountability of the IRD program.

Conclusion

Scientific research and discovery are the building blocks of the technological advances that are essential for our nation's economy to grow and to meet the challenges of the future, and NSF has an essential role to play in promoting scientific discovery. For the agency to achieve its mission, NSF must spend its research funds in the most effective and efficient manner while maintaining the highest level of accountability over taxpayer dollars. My office will continue to utilize the full range of our audit and investigative resources to exercise robust oversight of NSF's stewardship of federal funds and to safeguard the integrity of the Foundation's operations.