

**STATEMENT FOR THE RECORD OF  
DR. CHRISTINE BOESZ  
INSPECTOR GENERAL  
NATIONAL SCIENCE FOUNDATION  
before the  
U.S. SENATE  
COMMITTEE ON APPROPRIATIONS  
February 17, 2005**

Chairman Bond, Senator Mikulski, and distinguished members of the Subcommittee, I am Dr. Christine Boesz, Inspector General at the National Science Foundation (NSF). I once again appreciate the opportunity to present to you information as you consider NSF's fiscal year 2006 budget request. NSF's work over the past fifty-five years has had an extraordinary impact on scientific and engineering knowledge, laying the groundwork for technological advances that have shaped our society and fostered the progress needed to secure the Nation's future. Throughout, NSF has maintained a high level of innovation and dedication to American leadership in the discovery and development of new technologies across the frontiers of science and engineering.

As you know, however, the nature of the scientific enterprise has changed over the past few decades. Consequently, the challenges facing NSF have changed. My office has and will continue to work closely with NSF management to identify and address issues that are important to the success of the National Science Board and NSF. I have now been the Inspector General of NSF for five years and am pleased to have the opportunity to work with both Dr. Washington and Dr. Bement, sharing in their vision of a truly successful organization. For the past four years, I have testified before this Subcommittee on the issues that pose the greatest challenges for NSF management. This year, I will provide an update, from my perspective as Inspector General, on the progress being made at NSF to address the most critical of these challenges.

**AWARD ADMINISTRATION**

In a given year, NSF spends roughly 90 percent of its appropriated funds on awards for research and education activities. Awarding and managing these grants, cooperative agreements, and contracts is NSF's primary business activity. While NSF has a system for administering its peer review and award disbursement responsibilities, it still lacks a comprehensive, risk-based program for monitoring its grants and cooperative agreements once the money has been awarded.

In response to a reportable condition identified in the Independent Auditors Report for the past four years, the agency developed an *Award Monitoring and Business Assistance Program Guide* that includes post-award monitoring policies and

procedures, a systematic risk assessment process for classifying high-risk grantees, and various grantee analysis techniques. NSF also developed an annual grantee-monitoring plan, conducted site visits on selected high-risk grantees, and provided grant-monitoring training for its reviewers. In addition, during the past year, NSF realigned staff and resources to better address this challenge and contracted with a consultant to independently assess its post-award monitoring program.

While these efforts represent positive steps toward an effective award-monitoring program, concerns remain about the limitations of the risk model in identifying all high-risk awards and the adequacy of site visit procedures and the necessary resources provided to the post-award monitoring program. In addition, a recent audit by my office further highlights the need for increased post-award monitoring. My auditors found that a significant number of both annual and final project reports required by the terms and conditions of NSF's grants and cooperative agreements were either submitted late or not at all. This was due in part because of a lack of emphasis placed on the importance of these reports, and because NSF staff do not have the time to adequately address this facet of award administration. In addition, my auditors found that contrary to its policy, NSF has continued to fund some principal investigators who have not yet submitted their final project reports.

But I am encouraged by the results of NSF's consultant's independent assessment of the post-award monitoring program, which contained concerns similar to ours. The consultant's report identifies many opportunities for improvement and recommendations for positive change. Implementing a plan to address these opportunities for improvement would address many of our concerns and would be a significant step for NSF towards successfully meeting this challenge.

## **MANAGEMENT OF LARGE INFRASTRUCTURE PROJECTS**

Throughout my five-year tenure as Inspector General of NSF, we have considered management of large facility and infrastructure projects to be one of NSF's top management challenges.<sup>1</sup> While this is certainly a subset of award administration, I continue to feel strongly that large facility management warrants independent attention. As you know, NSF has been increasing its investment in large infrastructure projects such as accelerators, telescopes, research vessels and aircraft, supercomputers, digital

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<sup>1</sup> Memorandum from Christine C. Boesz, Inspector General, National Science Foundation, to Warren Washington, Chairman, National Science Board, and Arden Bement, Acting Director, National Science Foundation (Oct. 15, 2004); Memorandum from Christine C. Boesz, Inspector General, National Science Foundation, to Warren Washington, Chairman, National Science Board, and Rita R. Colwell, Director, National Science Foundation (Oct. 17, 2003); Memorandum from Christine C. Boesz, Inspector General, National Science Foundation, to Warren Washington, Chairman, National Science Board, and Rita R. Colwell, Director, National Science Foundation (Dec. 23, 2002); Memorandum from Christine C. Boesz, Inspector General, National Science Foundation, to Eamon M. Kelly, Chairman, National Science Board, and Rita R. Colwell, Director, National Science Foundation (Jan. 30, 2002); Letter from Christine C. Boesz, Inspector General, National Science Foundation, to Senator Fred Thompson, Chairman, Senate Committee on Governmental Affairs (Nov. 30, 2000).

libraries, and earthquake simulators. Many of these projects are large in scale, require complex instrumentation, and involve partnerships with other Federal agencies, international science organizations, and foreign governments. Some, such as the construction of the new South Pole Station, present additional challenges because they are located in harsh and remote environments.

As I have testified in the past, the management of these awards is inherently different from the bulk of awards that NSF makes. While oversight of the construction and operations of these large facility projects must always be sensitive to the scientific endeavor, it also requires a different set of management skills for the NSF staff involved. It requires expertise in the construction and oversight of large facilities; close attention to tracking costs and meeting deadlines; and effective coordination with scientists, engineers, project managers, and financial analysts. Although NSF does not directly operate these facilities, it is ultimately responsible and accountable for their success. Consequently, it is vital that NSF, through disciplined project management, exercise proper stewardship over the public funds invested in these large projects.

In fiscal years (FYs) 2001 and 2002, my office issued two audit reports on large facilities with findings and recommendations aimed at improving NSF's management of these projects.<sup>2</sup> Primarily, our recommendations were aimed at (1) increasing NSF's level of oversight with particular attention to updating and developing policies and procedures to assist NSF managers in project administration, and (2) ensuring that accurate and complete information on the total costs of major research equipment and facilities is available to decision makers, including the National Science Board, which is responsible for not only approving the funding for these large projects, but also setting the relative priorities for their funding.

NSF continues to make gradual progress towards addressing the reports' recommendations. The most significant progress was the hiring of a new Deputy Director for Large Facility Projects. During the past year, NSF has made further progress by providing this Deputy Director with 1.5 FTE's, which allowed him to begin to develop the detailed guidance needed by program officers to adequately manage their large facility projects. Among numerous duties related to large facility project management, the Deputy Director chairs a facilities panel that has responsibility for approving management plans for projects, and he receives periodic reports on active projects.

However, the Large Facility Projects Office continues to face a number of obstacles to successfully implementing a viable large facility management and oversight program. To enable this Office to develop a more influential role, NSF's senior management must clearly recognize and champion the Large Facility Projects Office's oversight responsibility, and provide it with the independent authority and resources to

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<sup>2</sup> OFFICE OF INSPECTOR GENERAL, NATIONAL SCIENCE FOUNDATION, AUDIT OF THE FINANCIAL MANAGEMENT OF THE GEMINI PROJECT, Report No. 01-2001 (Dec. 15, 2000); OFFICE OF INSPECTOR GENERAL, NATIONAL SCIENCE FOUNDATION, AUDIT OF FUNDING FOR MAJOR RESEARCH EQUIPMENT AND FACILITIES, Report No. 02-2007 (May 1, 2002).

handle it. These resources need to include funding for staff, contract support, travel, and other necessary resources. Without this management framework, the role of NSF's Large Facility Projects Office is likely to remain one that is primarily advisory and collaborative, rather than one that has a formal charge to substantively and positively influence project management decisions.

## **STRATEGIC MANAGEMENT OF HUMAN CAPITAL**

While the previous two management challenges are of an ongoing and urgent nature, they may be symptomatic of a larger, more pressing need for improved strategic management of NSF's human capital. In order to fully address its award management challenges, NSF will need to devote more resources and attention to making business and process improvements, while at the same time, planning for its future workforce needs. Although advances in technology have enhanced the workforce's productivity, NSF's rapidly increasing workload has forced the agency to become increasingly dependent on temporary staff and contractors to handle the additional work. NSF's efforts in the past to justify an increase in staff have been impeded by the lack of a comprehensive workforce plan that identifies workforce gaps and outlines specific actions for addressing them. Without such a plan, NSF cannot determine whether it has the appropriate number of people or the types of competencies necessary to accomplish its strategic goals.

NSF has recognized the seriousness of this challenge and, as I testified last year, has now identified investment in human capital and business processes, along with technologies and tools, as objectives underlying its new Organizational Excellence strategic goal.<sup>3</sup> NSF also contracted in fiscal year 2002 for a comprehensive, \$14.8 million, three to four-year business analysis, which includes a component for a Human Capital Management Plan. Preliminary assessments provided by the contractor confirmed that NSF's workforce planning to date has been limited and identify specific opportunities for NSF to improve in this area. NSF's Human Capital Management Plan, which was delivered in December 2003, links Human Capital activities to the NSF business plan and to the Human Capital Assessment and Accountability Framework provided by the Office of Personnel Management. While the current plan provides a roadmap for identifying NSF's future workforce needs, the needs themselves are still in the process of being defined. I continue to believe NSF cannot afford to wait long to address its workforce issues. If not adequately resolved, these issues will undermine NSF's efforts to confront its other pressing management challenges and to achieve its strategic goal of Organizational Excellence.

NSF's reliance on "non-permanent" personnel is another area of concern. Forty-seven percent of NSF's 700 science and engineering staff are either visiting personnel, temporary employees, or intermittent employees. Visiting personnel make an important contribution to NSF's mission by enabling the agency to refresh and supplement the

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<sup>3</sup> NATIONAL SCIENCE FOUNDATION, STRATEGIC PLAN FY 2003 – FY 2008 (Sept. 30, 2003) <[http://www.nsf.gov/od/gpra/Strategic\\_Plan/FY2003-2008.pdf](http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf)>.

knowledge base of its permanent professional staff. But managers who serve at NSF on a temporary basis frequently lack institutional knowledge and are less likely or able to make long-term planning a priority. Moreover, there are substantial administrative costs that NSF incurs in recruiting, hiring, processing, and training personnel that rotate every 1 to 4 years. In FY 2004, my office conducted an audit that identified the additional salary, fringe benefits, travel and other costs of visiting or temporary personnel, and found three areas where NSF could improve its administration of the programs.<sup>4</sup> In short, while visiting personnel are an important resource for NSF, the agency must continually balance the benefits of their services against the additional costs involved.

In conclusion I would like to comment briefly on my office's fiscal year 2006 budget request of \$11.5 million. Although this request represents a \$1.47 million (14.7 percent) increase over the fiscal year 2005 Current Plan, the increase is primarily to fund the annual audit of NSF's financial statements, which previously has been provided through NSF's appropriations. The contract for this audit will be re-competed in 2005, and we anticipate that its cost in fiscal year 2006 will increase dramatically, consuming 75 percent or more of our total requested increase.<sup>5</sup> The bulk of the remaining increase will be applied towards the expected pay increase for civilian personnel.

My office will continue to focus its audit attention on NSF's most pressing management challenges, some of which I have described for you today. In addition, we will also maintain a focus on specific issues that emerge concerning the management of NSF programs, procurement and acquisition, information technology, human capital, awardee financial accountability and compliance, and OMB Circular A-133 audits. We have recently made a strong commitment to improving the quality of audits conducted by our contract CPA firms, and the increase in time and effort required to meet the higher standards is significantly raising the costs of contracted audits.<sup>6</sup> In recent years, these audits have uncovered material issues concerning unallowable indirect costs, unfunded cost-sharing commitments, and records maintained by large school systems that were so inadequate they could not be audited. It is likely that the continuing increase in costs may result in a reduction in the number of contracted audits in fiscal year 2006. We will also have to more gradually phase in our assessments of NSF actions resulting from the agency's multiyear business analysis contract and workforce plan, which are scheduled for completion in FY 2005. Finally, while we will be able to initiate an audit on international collaborations, which are an integral part of NSF's portfolio, with

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<sup>4</sup> OFFICE OF INSPECTOR GENERAL, NATIONAL SCIENCE FOUNDATION, AUDIT OF COSTS ASSOCIATED WITH VISITING PERSONNEL, Report No. 04-2006 (July 23, 2004). Opportunities for improvement cited in the report include consulting income documentation, IPA pay computations, and VSEE cost of living adjustments.

<sup>5</sup> Our survey of the current audit market shows that audit costs in general are on the rise because of Sarbanes-Oxley and other government requirements. While the audit cost \$800,700 in FY 2004 and is projected to be \$855,800 in FY 2005, the audit under a new contract is expected to exceed \$1.0 million in FY 2006.

<sup>6</sup> Most contract CPA audits currently range from \$67,000 to \$160,000.

particular attention to the accountability and audit requirements of international partners, major efforts in this area may also have to be phased in.

Mr. Chairman, this concludes my written statement. I would be happy to answer any additional questions you or other members of the Subcommittee may have, or to elaborate on any of the issues that I have addressed today.

### **CONTACT INFORMATION**

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