SEMIANNUAL REPORT TO THE CONGRESS

NSF

September 2005

Office of the Inspector General

About
The National Science Foundation...

The National Science Foundation (NSF) is charged with supporting and strengthening all research disciplines, and providing leadership across the broad and expanding frontiers of scientific and engineering knowledge. It is governed by the National Science Board which sets agency policies and provides oversight of its activities.

NSF invests approximately $5 billion per year in almost 30,000 research and education projects in science and engineering, and is responsible for the establishment of an information base for science and engineering appropriate for development of national and international policy. Over time, other responsibilities have been added including fostering and supporting the development and use of computers and other scientific methods and technologies; providing Antarctic research, facilities and logistic support; and addressing issues of equal opportunity in science and engineering.

... And The Office of Inspector General

NSF's Office of Inspector General promotes economy, efficiency, and effectiveness in administering the Foundation's programs; detects and prevents fraud, waste, and abuse within NSF or by individuals that receive NSF funding; and identifies and helps to resolve cases of misconduct in science. The OIG was established in 1989, in compliance with the Inspector General Act of 1978, as amended. Because the Inspector General reports directly to the National Science Board and Congress, the Office is organizationally and operationally independent from the agency.

Front cover: The Very Large Array is one of the world's premier astronomical radio observatories. Located in New Mexico, the VLA is part of the National Radio Astronomy Observatory a facility of the National Science Foundation operated under cooperative agreement by Associated Universities Inc. (Photo provided by NRAO/AUI; selected by Ken Straka)

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From the Inspector General

This report highlights the activities of the National Science Foundation (NSF) Office of Inspector General (OIG) for the six months ending September 30, 2005. During this period, our office issued six audit reports and reviews that identified $1,104,082 in questioned costs, and $798,932 of promised cost-shared funds "at-risk" of not being contributed. In addition, we closed 35 civil/criminal cases and 44 administrative cases, while recovering $1,888,971 in NSF funds.

Our list of the most serious management challenges facing NSF in FY 2006 appears on page 7. I am pleased to note that NSF has made significant progress this past year on several longstanding challenges. However, considerable work remains to be done in seven critical areas: award administration; human capital; budget, cost and performance integration; information technology; procurement; the U.S. Antarctic Program; and merit review.

A new management challenge related to "promoting integrity" among research scientists appears on the list this year. I am proud that our office has been in the forefront of the Federal Government's efforts to address the growing problem of research misconduct. As Chairman of the Inspector General Working Group on Misconduct in Research, I am gratified to see the science community's awareness of this important issue increase. It is not the "victimless crime" that some may think. Just as insider trading erodes public confidence in the stock market, plagiarism and the falsification and fabrication of data undermine the integrity of the science enterprise.

On page 8 of this report, we reaffirm our support for amending the Program Fraud Civil Remedies Act of 1986 (PFCRA) to include NSF. PFCRA enables designated agencies to handle allegations of program fraud, when the claims are less than $150,000, without the assistance of the Department of Justice. At its September meetings, the National Science Board also recognized that the inclusion of NSF in PFCRA would provide the agency with authority to expeditiously resolve OIG investigations that come under the Act. I urge Congress to consider legislation to effect this change.

Finally, as we move into the new year I remain committed to assisting NSF as it addresses the challenges it faces in a rapidly changing world. The Office of Inspector General welcomes the recently confirmed Deputy Director, Dr. Kathie Olsen. We look forward to a productive working relationship with her.

Christine C. Boesz, Dr.P.H.
Inspector General
November 17, 2005

Executive Summary

- The Office of Inspector General has submitted its list of what it considers to be the most serious management and performance challenges facing the National Science Foundation (NSF). Ten challenges remain from last year's list: post-award administration policies; management of large infrastructure projects; cost-sharing; workforce planning; U.S. Antarctic Program; administrative infrastructure; GPRA reporting; cost information; information security; and broadening participation. In addition, five new management challenges appear this year including promoting integrity, project reporting, contract monitoring, accounting for environmental liabilities, and unfunded proposals. **(Page 7)**

- An audit of 27 awards made to the American Geophysical Union (AGU), a nonprofit scientific organization, found that AGU lacked adequate controls to oversee and monitor its 50 subawards amounting to $1.5 million. Specifically AGU did not: 1) require subawardees to follow rules pertaining to allowable costs; 2) require subawardees provide receipts to support costs; 3) adequately review supporting documentation; 4) ensure that subawardees were trained in grants management; or 5) conduct any site visits to evaluate subawardees' abilities to manage Federal funds. **(Page 15)**

- A review of NSF's travel card program found that in general NSF has effective controls to ensure that its personnel properly use their government travel cards and pay their travel card accounts timely. NSF has improved its monitoring and oversight procedures to detect and address both unauthorized use of travel cards and delinquent accounts. However, OIG also found that NSF cardholders improperly used their travel cards in some instances to pay for items that were not pre-approved, or in situations when other procurement instruments would have been more appropriate. **(Page 15)**

- OIG audited the financial reports submitted by the School District of Pittsburgh (SDP) for the seven-year period

ending September 30, 2003, as part of our ongoing review of awardees under NSF's Urban Systemic Program and Urban Systemic Initiative (USP/USI). The school district could not adequately support approximately $900,000, or 21 percent, of salaries and wages and related fringe benefit and indirect costs claimed under the award. We also questioned $2.1 of the $4.6 million of cost sharing claimed and identified another $800,000 of cost sharing as "at risk" of not being met, primarily because SDP could not verify that the costs were incurred for the benefit of the NSF awards. **(Page 16)**

- After a three-year investigation, a Florida university agreed to return $1.495 million to the federal government and entered into a Compliance Agreement for the next five years. OIG initiated an investigation to determine whether the university submitted false statements to NSF after receiving an allegation that the university was misrepresenting the amount of cost-share funds it provided. During the investigation, the documentation submitted by the university failed to account for approximately $1.4 million of the award funds received from NSF. **(Page 23)**

- A company that received Small Business Innovative Research (SBIR) awards from multiple agencies involving overlapping research submitted the same research results to those agencies. The investigation was initiated after OIG received an anonymous letter claiming that the company had not fully disclosed its research activities prior to receiving its awards. In June 2005, the company signed a Release and Settlement Agreement with the U.S. Attorney's Office, agreeing to pay $155,500 to resolve this matter, which included full repayment of the 2002 NSF Phase 1 SBIR Award. **(Page 24)**

- The Director of Grants at a community college submitted two proposals as a PI in which he copied substantial portions of text. Most of the passages in question were full paragraphs lacking quotation marks or some other means of differentiating the copied text from his own words. Our investigation further revealed that the Director of Grants was a professional grant writer who prepared the two proposals as a favor to the Co-PIs listed on the proposals. Given the unique set of circumstances in this case, we recommended that NSF make a finding of research misconduct against the PI, send him a letter of reprimand, require him to certify completion of a course in scientific ethics, and require him to certify that any documents he submits to NSF for one year following its finding of research misconduct do not contain plagiarized material. **(Page 29)**

FY 2006 Management Challenges

In October 2005, the Office of Inspector General (OIG) submitted to NSF management its list of what it considers to be the most serious management and performance challenges facing the National Science Foundation (NSF). The list was based on our audit and investigative work, general knowledge of the agency's operations, and the evaluative reports of others, such as GAO and NSF's various advisory committees, contractors, and staff.

Ten challenges remain from last year's list, most of which reflect areas of fundamental program risk that are likely to require management's attention for years to come. They are: post-award administration; management of large infrastructure projects; cost-sharing; workforce planning; U.S. Antarctic Program; administrative infrastructure; GPRA reporting; cost information; information security; and broadening participation.

Five new management challenges appear this year including promoting integrity, project reporting, contract monitoring, accounting for environmental liabilities, and unfunded proposals. The challenge pertaining to the management of the Math and Science Partnership was removed from this year's list because the agency has successfully managed the program through its critical early stages. The OIG's management challenges letter appears in its entirety in the Appendix on page 49.

Legal Review

Statutory and Regulatory Review

The Inspector General Act of 1978, as amended, mandates that our office monitor and review legislative and regulatory proposals for their impact on the OIG and NSF's programs and operations. We perform these tasks for the purpose of providing leadership in activities that are designed to promote economy, effectiveness, efficiency, and the prevention of fraud, waste, abuse and mismanagement. We also keep Congress and NSF management informed of problems and monitor legal issues that have a broad effect on the Inspector General community. During this reporting period, we reviewed three bills that either affected NSF, OIG, or both. The following legislation merits discussion in this section.

Program Fraud Civil Remedies Act of 1986 (PFCRA) (31 U.S.C. §§ 3801-3812)

A legislative priority that we support is amending PFCRA to include NSF and the 26 other "Designated Federal Entity" (DFE) agencies that are currently excluded from participation under the Act's enforcement provisions. The Office of Inspector General's concern related to PFCRA involves the ability of DFE agencies to fully implement their statutory mission to prevent fraud, waste and abuse by availing themselves of the enforcement capabilities contained within the Act. In fact, we have raised the issue of NSF's inclusion under the PFCRA legislation in several prior semiannual reports.

PFCRA sets forth administrative procedures that address allegations of program fraud when the claims are less than $150,000.00. Currently, the executive departments, military departments, establishments, as defined under the Inspector General Act of 1978, and the United States Postal Service, are the only agencies permitted to proceed under PFCRA. NSF and other DFE agencies with Inspectors Generals appointed by agency heads are not included.

We believe that using the enforcement provisions of PFCRA will enhance NSF and other DFE agency recoveries in instances of fraud that fall below PFCRA's jurisdictional threshold of $150,000.00. In short, including NSF and other DFE agencies under PFCRA will further the OIG community's statutory mission to deter fraud, waste and abuse. In September, the National

Science Board also expressed its support for "the past efforts that both OIG and NSF have undertaken to amend PFCRA to afford NSF the investigative resolution authorities provided other federal agencies".

Outreach

We engage in a continuous effort to inform and educate the communities we serve as a key part of our mission to prevent and detect fraud, waste, and abuse. Our efforts have resulted in greater awareness of our organization and goals. The subjects of our efforts include the national and international research communities, other federal agencies and OIGs, and NSF.

While we recognize that prevention and detection of waste and fraud are among our statutory missions, they are also integral to the missions of the people, organizations, and professional communities we work with on a daily basis. Success in our collective mission to prevent and detect wrongdoing requires a shared commitment within the research community to promoting integrity. On an institutional level, we believe that the best way to express that commitment is through the establishment of sound compliance programs. Such programs will lead to a culture of compliance within the research community and will contribute to shared success in research endeavors.

Working with the Research Community

IG Co-hosts International Accountability Forum. Last June, Dr. Boesz and Christopher Schneider, PhD, Head of Scientific Affairs, Deutsche Forschungsgemeinschaft (DFG, Germany) co-hosted a workshop entitled *Accountability in Science Research Funding – Meeting the Challenge*, in Bonn Germany. The purpose of the workshop was to gather international organizations that oversee funding for scientific research to discuss strategies for addressing accountability issues by drawing on case studies and best practices. The primary focus of the meetings was on financial monitoring and auditing, and misconduct in research allegations.

Dr. Christine Boesz greets Dr. Christopher Schneider of DFG Germany at the start of the conference: Accountability in Science Research Funding.

The participants recognized that scientific research is becoming increasingly multinational involving international collaborations that are both formal and informal. The accountability challenges presented are enormous and require global

communication and cooperation among accountability professionals. For example, during the workshop participants discussed the importance of devising ways to rely on the work of their counterparts in other countries. Representatives of thirteen countries attended the meetings including officials from the United Kingdom, France, Germany, Austria, Czechoslovakia, Finland, Ireland, Israel, Holland, Switzerland, and Norway.

OIG Staff Attend Conferences. OIG staff members were invited to attend and present at a wide range of conferences and events conducted by institutions and associations of research professionals. The staff addressed current issues of concern, explained available processes to remedy them, and highlighted tools available to prevent their reoccurrence. OIG outreach contributed to the efforts of organizations within the national and international research communities to identify and proactively confront the numerous and often contentious issues that arise in the area of research misconduct, grant administration, and regulatory compliance.

These conferences and events included the Society for Research Administrators International annual meeting and regional meetings in Tampa, FL and Niagara Falls, NY; the NSF-sponsored Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Grantee Conference; and Education and Human Resource (EHR/HRD) Conference. In each of these forums, our staff engaged a broad spectrum of the research community in both formal and informal discussions. Attendees were most interested in matters relating to the identification and prevention of fraud; research misconduct (plagiarism, fabrication, and falsification); cost-sharing and time/effort documentation and reporting; conflicts of interest; and the establishment of compliance programs and committees at research institutions.

University Presentations. Our staff have received numerous invitations to provide training to university personnel including: university officers, individuals who apply for or administer NSF awards, those involved in performing supported research, and individuals who conduct inquiries into allegations of misconduct. During this semiannual period, we visited six universities and in each case, the participants demonstrated strong interest and engaged OIG staff in constructive questions and answers to refine their understanding of the subjects being discussed.

Working with the Federal Community

PCIE/ECIE Activities. NSF OIG investigators reach out to their counterparts in the IG community on a regular basis. During this semiannual

period, we met with individuals from a number of other Federal OIGs on a variety of professional matters. These professional interactions were conducted both on an office-to-office level to address requests for particular assistance and within the context of the Council of Counsels to Inspectors General (CCIG) and the PCIE/ECIE Committees. NSF OIG continues to actively participate in the PCIE/ECIE Investigations Committee, the PCIE/ECIE Inspection and Evaluation Committee, and the PCIE GPRA Roundtable Meetings. We also provide leadership for the PCIE/ECIE Misconduct in Research Working Group.

Working with NSF

Promoting Integrity.   During this semiannual period, we presented two outreach posters to members of the National Science Board, NSF personnel, and the general public attending the National Science Board meetings. The posters illustrated the need for effective compliance programs at research institutions, the serious ramifications of failing to establish such programs, and the overlap between research misconduct and fraud investigations. At the invitation of the NSF Designated Agency Ethics Official, we participated in the agency's Conflict of Interest briefings to ensure that every NSF employee understands the OIG mission and responsibilities, our ongoing liaison program with NSF, and the manner by which employees can bring matters to our attention.

Finally, OIG staff continue to serve as resource advisers at the three-day NSF Program Manager Seminars for new program officers. We present information about case studies and the OIG mission. Further, we explain the program managers' responsibilities for informing OIG of concerns regarding fraud, waste, and abuse. These sessions have been extremely successful in providing an opportunity to develop personal and professional relationships between OIG and NSF staff.

OIG/NSF Liaison Program.   We continue our ongoing efforts to enhance our communications and professional relationships with the individual directorates and office staff within NSF. OIG has designated two liaisons for each NSF office, generally one investigator and one auditor. During this semiannual period, OIG liaisons met with their counterparts in NSF to improve mutual understanding of each other's roles and concerns and to strengthen the lines of communications between our offices.

Audits *&* Reviews

Significant Reports

Fiscal Year 2004 Management Letter Report Cites Need for Improved Financial Management Practices

The FY 2004 Management Letter issued in conjunction with NSF's financial statement audit recommends improvements to NSF's financial reporting controls and operations. The Letter states that NSF needs to refine its plan to satisfy the reporting requirements of the Improper Payments Information Act, develop outcome-oriented measures to assess and report on its internal organizational performance, and develop a plan to implement new federal requirements to evaluate NSF's financial reporting controls. NSF also needs to seek federal guidance on two separate accounting issues.

A management letter discusses findings identified during a financial statement audit that warrant management attention but are not material in relation to the financial statements. This year's Management Letter made 35 recommendations. OIG has accepted corrective action plans for 19, and is working with management to identify appropriate corrective actions for the remaining 16 recommendations. The FY 2005 financial statement audit currently underway, will verify the implementation of the agreed upon corrective actions.

The Management Letter identified weaknesses in NSF's process of estimating improper payments and recommended

that NSF develop and utilize sampling techniques to provide information required by the *Improper Payments Information Act of 2002* (the Act). It further suggested that NSF should consult with a statistician to develop a multi-stage statistical sampling design to test grant expenditures for improper payments. The Act requires agencies to annually review each of their programs and activities and identity those that may be susceptible to significant improper payments. Dollar estimates of improper payments, as well as corrective action plans to curb them, must be included in their *Performance and Accountability Reports*. The initiative to reduce improper payments is a part of the President's Management Agenda.

For the fourth consecutive year, the Management Letter identified concerns relating to NSF's reporting of cost efficiency measures in its *Performance and Accountability Report*. NSF does not report basic outcome-oriented cost efficiency measures such as the cost of awarding or administering a grant, choosing instead to report on administrative cost savings resulting from the use of new and improved technology and/or changes to business processes. Reporting both outcome-oriented cost efficiency measures *and* cost savings measures, would provide more useful information to stakeholders about the efficiency of NSF's internal grant-making and administering process.

In addition, the Management Letter recommends that NSF prepare a detailed action plan to evaluate NSF's internal controls in order to comply with new federal requirements. The Office of Management and Budget (OMB) issued revisions to OMB Circular A-123, *Management's Responsibility for Internal Control*, effective for FY 2006, and requires agencies to document, test and separately report on the adequacy of their financial reporting controls.

The Letter also suggests that the agency should seek guidance from the Federal Accounting Standards Advisory Board (FASAB) on two accounting issues. The first issue pertains to whether or not NSF should report as a liability post-retirement benefit expenses for the employees of a Federally Funded Research and Development Centers (FFRDC) that it wholly supports. Currently neither NSF nor the FFRDC parent organization recognizes this liability. Second, NSF's accounting practices may not be consistent with the intent of applicable accounting standards for the recognition and reporting of environmental liabilities in the Antarctic because of the unique status of the treaty that governs NSF's activities there. Specific guidance is needed from FASAB for both of these unusual issues.

Audit Finds Weaknesses in Oversight of Subawardees

An audit of 27 awards made to the American Geophysical Union (AGU), a nonprofit scientific organization in Washington, DC found that AGU lacked adequate controls to oversee and monitor its 50 subawards amounting to $1.5 million or 19 percent of NSF costs of $8.1M. Specifically, AGU did not: 1) require its subawardees to follow the rules pertaining to allowable costs; 2) enforce its requirement that subawardees provide receipts to support costs; 3) adequately review the supporting documentation; 4) ensure that subawardees were trained in grants management; or 5) conduct any site visits to evaluate subawardees' abilities to manage federal funds.

In addition, AGU did not properly segregate duties. The human resources department performed both the personnel and payroll functions, thereby increasing the risk of improper and fraudulent payments. As a result of these and other control weaknesses, AGU claimed costs of $198,548 which we questioned as unallowable. These problems occurred because AGU did not establish proper internal controls, or give priority to training its staff in federal administrative requirements and cost principles. AGU generally agreed with most recommendations, but did not agree that rent paid to a related party, as well as some participant support costs, were unallowable. We referred the audit report to NSF's Division of Institution and Award Support for resolution.

NSF Has Improved Controls Over its Travel Card Program

A review of NSF's travel card program found that in general NSF has effective controls to ensure that its personnel properly use their government travel cards and pay their travel card accounts timely. Since our last audit in 2002, NSF has improved its monitoring and oversight procedures to detect and address both unauthorized use of travel cards and delinquent accounts.

However, OIG also found that NSF cardholders improperly used their travel cards in some instances to pay for items that were not pre-approved, or in situations when other procurement instruments would have been more appropriate. To address these issues, we recommended that NSF obtain automated software to improve its monitoring capabilities, clarify certain policies regarding the use of travel cards, and improve its employee separation procedures to ensure that all cardholders' travel card accounts are closed promptly. NSF concurred with the recommendations and has already implemented several improvements.

The Law Enforcement Program in Antarctica Ensures Security

An audit of the law enforcement program in Antarctica found that it effectively ensures the security of U.S. citizens and protects federal property. Although crime is rare in Antarctica, its harsh climate and isolated location led NSF to enter into an agreement with the U.S. Department of Justice (DoJ) in 1992, to better address its unique security requirements. The agreement authorizes the limited appointment of NSF's station chief at McMurdo Station to serve as a Special Deputy U.S. Marshal, reporting to the U.S Marshals Service in Hawaii. For the station chief to be eligible for appointment as Special Deputy, NSF must ensure that the person meets seven requirements, including completion of the Federal Law Enforcement Training Center's Basic Criminal Investigators course, and compliance with DoJ's policy on the use of deadly force. The audit found that NSF complied with all regulations governing Special Deputy appointments.

The United States maintains three research stations on Antarctica (shown on map) and all are operated by the National Science Foundation.

However, the audit found that the safety of U.S. citizens and federal property could be enhanced by properly equipping the Special Deputy to handle potentially dangerous law enforcement situations. While the Special Deputy must be firearms-qualified, NSF does not permit lethal weapons in Antarctica. Instead, when a crime is committed, NSF expects the Special Deputy (who has authority to arrest or detain an individual) to defuse the situation through verbal discourse. Since this is not always practical, the audit recommended that NSF coordinate with the U.S. Marshals Service to select an appropriate non-lethal weapon and issue and train the Special Deputy on the weapon selected. NSF concurred with the recommendations and after consulting with the U.S. Marshals Service, selected appropriate non-lethal weapons for use in Antarctica.

Audit of School District Finds Same Deficiencies Cited in Past Audits

OIG audited the financial reports submitted by the School District of Pittsburgh (SDP) for the seven-year period ending September 30, 2003, as

part of our ongoing review of awardees under NSF's Urban Systemic Program and Urban Systemic Initiative. The school district either could not provide or produced unreliable documentation to support approximately $900,000, or 21 percent, of salaries and wages and related fringe benefit and indirect costs claimed under the award. We also questioned $2.1 of the $4.6 million of cost sharing claimed and identified another $800,000 of cost sharing as "at risk" of not being met, primarily because SDP could not verify that the costs were incurred for the benefit of the NSF awards.

These problems occurred because SDP did not have a system to ensure accurate and timely completion of labor effort certifications and could not adequately account for cost sharing. Both of these material weaknesses were reported in a July 1997 OIG audit of two NSF awards to SDP. As in the prior audit, SDP officials represented that they had taken corrective actions to properly document and account for payroll costs and cost sharing. Because the problems identified in this audit have persisted over time, we recommended that NSF recognize SDP as a high-risk awardee and not grant it new awards until SDP has corrected the internal control deficiencies affecting its payroll and cost sharing activities. The audit report was forwarded to NSF's Division of Institution and Award Support for audit resolution.

Review of Thrift Savings Plan Catch-Up Contributions

At NSF's request, the OIG contracted with KPMG LLP to check for errors associated with the processing of Thrift Savings Plan (TSP) "catch-up" contributions made by NSF employees in 2003 and 2004. TSP is a retirement savings and investment plan for federal employees. Public Law 107-304 permits eligible TSP participants who are age 50 or older to make tax-deferred "catch-up" contributions to their TSP retirement accounts that do not count against the statutory contribution limitations that normally apply.

After comparing NSF's payroll withholding records with the contribution data reflected in TSP records, KPMG identified a significant number of differences that will require NSF to make corrections to the TSP accounts of many employees. The OIG assisted NSF in reviewing the differences identified by KPMG and determining the required corrections. NSF currently plans to submit the corrections to TSP in the first quarter of FY 2006.

Audit Resolution

University Agrees to Improve Administration Over its Research Program

Earlier this year, we reported on an audit of the University of South Dakota (USD) that found it had overstated technical progress and accomplishments on a project and understated the difficulties the project faced in meeting its intended objectives.[1] In light of these problems, NSF declined to continue the project, allowing $620,020 of NSF funds to be redirected to other research programs. Our audit also found that USD inadequately managed subawards and subcontracts and questioned as unallowable $142,593 of costs charged to NSF awards. Many of the problems occurred because the University did not allocate enough resources for grant administration to keep pace with the growth of its research program. In addition, USD did not have an adequate understanding of its indirect cost rate structure, and did not have a formal policy or process to determine and classify direct and indirect costs, especially salary and wages.

In response to the audit recommendations, USD hired a full-time research director to oversee its sponsored research program, agreed to revise its subcontracts to include more detailed statements of work and deliverables, and held workshops to educate University staff and potential contractors on subawardee responsibilities. In addition, USD agreed to revise its policies and procedures concerning allowable costs, repay $25,488 of the questioned costs, and contacted its cognizant federal agency, the Department of Health and Human Services (HHS), to negotiate a new indirect cost rate. NSF agreed with most of the proposed corrective actions and is following up to verify their implementation. While NSF did not sustain the remaining questioned salary amounts, it required the University to implement policies and procedures to ensure that future salary amounts, whether direct or indirect costs, are properly charged in accordance with federal requirements. Furthermore, NSF discussed with HHS our concerns about how the University allocates salary costs in its new indirect cost rate.

Two Community College Audits Resolved

During this reporting period, NSF resolved two community college audits that were previously reported in March.[2] An audit of Texas State Technical

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[1] March 2005 OIG Semiannual Report, p.18
[2] March 2005 OIG Semiannual Report, pp.19-20

College – West Texas (TSTC) questioned $24,745 in salaries and related fringe benefits for work that had not been performed, and found that TSTC was missing many of its employee activity reports used to support approximately $650,000 in costs or over 50 percent of the total $1.25 million costs TSTC claimed on its NSF award. OIG also found that TSTC: lacked a system to track, record, and monitor cost sharing; did not obtain financial disclosure statements from its investigators; and did not prepare contractual agreements with all of it consultants. NSF sustained the $24,745 in questioned salaries and related fringe benefits, agreed with all of the compliance and internal control recommendations, and verified that TSTC had adequately revised its internal policies and procedures to correct these control deficiencies.

In the case of Springfield Technical Community College (STCC), NSF sustained $35,000 in questioned consultant costs, but allowed $195,133 of questioned cost sharing because STCC provided labor effort certifications and documentation that were not available during the audit. STCC also revised its Grants Manual to include additional controls over the processing and documenting of cost-shared expenses and consultant costs.

OIG Audit Manager Kathleen Leone, a Naval Reserve officer, poses with daughters Cecilia and Gemma before being assigned to serve in Kuwait last summer.

Work In Progress

Continuing Audit of NSF's Raytheon Contract

At NSF's request, the OIG contracted with the Defense Contract Audit Agency (DCAA), to complete a series of audits of Raytheon Polar Services Company (RPSC). RPSC provides science, operations and maintenance support to sustain year round research programs in Antarctica. In our prior Semiannual Report,[3] we reported that the auditors questioned $33.4 million, or 9.2 percent, of the $363 million costs claimed by RPSC for the three-year period ended December 31, 2002. The OIG continues to work with DCAA to complete an audit of an additional $200 million claimed by RPSC for the two-

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[3] March 2005 Semiannual Report to Congress, p. 15

year period ended December 31, 2004, and to assess the adequacy of the internal controls over RPSC's financial, accounting, billing and reporting systems. The review will also determine whether Raytheon complied with its federally disclosed cost accounting practices. Additionally, OIG supports NSF's efforts to require that RPSC implement an action plan that will prevent RPSC from claiming prohibited costs for payment, in accordance with its contract terms. We expect to provide NSF with the results of the internal control reviews and the incurred cost audits in the next semiannual period.

Labor Effort at Universities

OIG has initiated a review of labor effort reporting at NSF's largest funded universities to assess the adequacy of their accounting and reporting processes. Approximately one third of all NSF award costs are for salaries and wages, amounting to $1.2 billion annually at universities. Recent settlements of civil cases involving the improper billing of staff time worth large dollar amounts by several major universities has raised the profile of these types of abuses. The Department of Health and Human Services is the cognizant federal agency, which made the settlements with universities involved in clinical research. We are coordinating our reviews with the cognizant federal agencies.

Dissemination of Research Findings and Results

OIG is conducting audit work to assess NSF's policies and practices for publicly disseminating the results of the research it funds. As part of this audit, we are examining how other federal agencies that fund basic research disseminate the results of their research. We also plan to seek input from NSF's research community on their level of satisfaction with NSF's current dissemination practices, and potential improvements.

A-133 Audit Reports

The Single Audit Act of 1984 (Public Law 98-502) and the Single Audit Act amendments of 1996 (Public Law 104-156) requires non-federal entities that expend $500,000 or more a year in federal awards to have an organization-wide audit, known as the A-133 audit[4], that evaluates both the entity's financial statements and compliance with federal award requirements. According to the Federal Audit Clearinghouse (FAC), which collects A-133 audit reports, it

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[4] OMB Circular A-133 provides guidelines for the performance of these audits.

processed 1,013 A-133 audit reports with $4.9 billion of NSF funding during the last six months. Of this total, 375 reports included findings and reported $3.7 billion in NSF funding.

Desk Reviews

After A-133 audit reports are submitted to the FAC, we conduct desk reviews of audits where either a)NSF is the cognizant or oversight agency, or b)the audit report identifies findings specific to NSF awards. In this reporting period, we conducted desk reviews of 99 audit reports that covered NSF expenditures totaling $1.7 billion from fiscal years 2002 through 2005. Seventy-eight of these reports contained a total of 109 compliance and internal control findings pertaining directly to NSF awards, and an additional 138 findings that could potentially impact NSF awards.[5]   Among these reports, the auditors issued 7 qualified, adverse or disclaimer of opinions on the financial statements and 21 qualified, adverse or disclaimer of opinions on the entity's compliance with federal award requirements.

Findings Related to NSF Awards by Category

Name	NSF Findings	Other Agency Findings	Management Letter Findings	Total
Financial Management	12	28	16	**56**
Salary/Wages	18	19	13	**50**
Subawards	16	3	4	**23**
Procurement System	11	7	5	**23**
Cost-Sharing	6	14	2	**22**
Equipment	8	4	9	**21**
Award Management Requirement	8	7	4	**19**
Indirect Costs	4	12	1	**17**
Other Direct Costs	2	12	0	**14**
Other	24	32	30	**86**
Total	**109**	**138**	**84**	**331**

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[5] For the first time, we reviewed A-133 findings related to awards made by other federal agencies for indications of systemic internal control weaknesses. We provided this information to NSF to assist in identifying high-risk audit areas and institutions.

We also examined 47 management letters that detail less significant internal control deficiencies than those described in audit reports. Thirty of the management letters contained a total of 84 deficiencies that could impact NSF awards. Examples include inadequate segregation of duties, lack of formal policies and procedures, and failure to check federal debarred vendor listings. Auditors questioned $882,731 of NSF award costs claimed by award recipients, including one institution that claimed $106,280 in unsupported payroll expense. As indicated by the preceding chart, the most common findings were related to deficiencies in financial management, salary and wages, subawards, and procurement.

Investigations

Civil and Criminal Investigations

University Settles Three-Year Investigation

After a three-year investigation, a Florida university agreed to return $1.495 million to the federal government and entered into a Compliance Agreement for the next five years. In April 2002, we received an allegation that the university was not providing the agreed upon cost-share under an NSF award and was misrepresenting to NSF the amount of cost-share funds it provided. We initiated an investigation to determine whether the university submitted false statements to NSF.

During the investigation, we interviewed several individuals at the university and worked extensively with a forensic auditor. We asked the university to provide documentation of award expenditures and documentation regarding cost-share funds certified to by the university.

As a result of these investigative efforts, we uncovered significant issues with the university's financial administration of this award. Notably, we discovered that the university maintained award documentation in boxes stored in an attic and in numerous and constantly-shifting administrative offices on campus. Consequently, we had to make multiple requests and pay multiple visits to the university before obtaining award documentation sufficiently organized and comprehensible for a forensic auditor's review. The documentation submitted by the university failed to account for approximately $1.4 million of the award funds received from NSF.

After gathering sufficient evidence, we consulted the Civil Division of the U.S. Attorney's Office for the Eastern District of Virginia. With its guidance, OIG, NSF, and the university developed a Compliance Agreement and a Settlement Agreement. In June 2005, the university, NSF, and OIG signed both agreements. The Settlement Agreement settled OIG's investigation and requires the university to repay $1.495 million to NSF. The Compliance Agreement requires the university to set up a program to prevent fraud and to ensure compliance with federal regulations. The compliance program must include the appointment of a compliance officer and a compliance committee, the identification of the roles and responsibilities of individuals involved in the administration of grant funds, and the establishment of a variety of internal systems, including financial systems pertaining to time and effort, cost sharing and monitoring of sub-recipients. In addition, the university is required to establish a whistleblower program and perform an annual audit of its compliance with federal laws and regulations.

The elements of the Compliance Agreement are parallel with those in the Federal Sentencing Guidelines for Institutions, which recently formed the basis for guidance issued by the Council on Government Relations on *Managing Externally Funded Research Programs: A Guide to Effective Management Practices.* The Sentencing Guidelines identify seven elements of an effective compliance and ethics program to prevent and detect criminal activity. These elements include: written policies and procedures; clear lines of responsibility; supportive, responsible institutional leadership; training and education programs; programs to encourage compliance, ethical behavior and the detection and prevention of criminal wrongdoing; and a risk assessment program.

The university recently informed us that it has appointed a compliance officer to oversee institutional compliance with applicable laws, regulations and NSF award conditions. Further, the university's Board of Trustees recently adopted an array of rules and policies designed to improve its financial management of NSF awards. We look forward to continued progress by the university.

Company Pays $155,500 to Resolve Case Involving Duplicate Research Results

In 2003, we received an anonymous letter claiming that a company received overlapping research awards from multiple agencies without fully disclosing the company's research activities. The same letter was sent to OIGs at several other agencies, and we led a multi-agency investigation which included agents from DoD, DoE, and NASA, and a forensic auditor from

DCAA. We found that the company had received Small Business Innovative Research (SBIR) awards involving overlapping research from multiple agencies, and submitted the same research results to multiple agencies. Specifically, we identified an SBIR Phase I final report submitted to NSF in 2002 that contained the same research that had been submitted in an SBIR Phase II report to DoD in 2001.

We also found that the company submitted an SBIR proposal to DoD without disclosing that the same research proposal had previously been submitted and funded by NASA. We referred our findings to the Civil Division of the U.S. Attorney's Office for the Eastern District of Virginia. In June 2005, the company signed a Release and Settlement Agreement with the U.S. Attorney's Office, agreeing to pay $155,500 to resolve this matter, which included full repayment of the 2002 NSF Phase 1 SBIR Award. The company also implemented written procedures to ensure that in future SBIR submissions it will disclose similar or overlapping SBIR proposals or awards.

Investigation Prompts Recommendation to Increase Monitoring of Awardee

The Department of Justice (DoJ) entered into a settlement agreement with a non-profit research institution investigated for improperly transferring costs among various federal and non-federal accounts, resulting in approximately $5,000 being returned to NSF. DoJ and the Department of Health and Human Services Office of Inspector General conducted a joint investigation and reached a settlement with the institution in which the institution agreed to reimburse $6.5 million to the United States. The government concluded that the institution lacked adequate internal controls to ensure that cost transfers were made in a timely fashion, for an appropriate reason, and with adequate documentation. Moreover, during the investigative audit, it was determined that the institution's accounting systems were incapable of complying with applicable requirements regarding the request, receipt, and use of federal grant proceeds. We recommended that NSF take action to protect NSF funds awarded to the institution, by declaring it a high-risk organization and imposing special award conditions to safeguard current and future NSF funds awarded to the institution.

University Returns Overcharges For Principal Investigator's Time

The investigation of a Principal Investigator (PI) for over-billing an NSF award resulted in the return of $24,781 to NSF. The Office of Audits referred

to the Office of Investigations allegations that a PI at a university made false statements in annual reports submitted to NSF, and claimed an excessive amount of time and effort on the NSF award. After reviewing information regarding the PI's responsibilities both within and outside the university, along with time and effort certifications, annual reports, and travel records, we concluded that there were substantial periods in which the PI was claiming significantly more than 100% of his time to various activities. We also received and investigated additional related allegations of conflicts of interests (COI), duplication of effort, and fraud, which were not ultimately substantiated. At the conclusion of the investigation, the university informed us that the PI had resigned from his position. The university agreed that the PI was overextended in his responsibilities at the time that he billed NSF for a significant percentage of his time, and determined that it should return $24,781 that had been overcharged for the PI's time.

Employee Misuses Government Travel Credit Card

An employee charged approximately $2,500 to her government travel card, for a rental car that was unrelated to official travel. The employee explained that she initially rented the car for official travel that lasted one week, and kept the rental car for an additional two months because the car she owned was not working. The bank cancelled the employee's government travel credit card account and NSF offset the employee's salary to pay off the unpaid card balance. We referred the results of the investigation to the agency, which suspended the employee for five days.

NSF Receives Part of Settlement With Government Contractor

NSF received a portion of a $6.6 million settlement between the government and a contractor that took kickbacks on construction bonds used to finance federal projects. The contractor provided services to an NSF awardee institution to prepare a laboratory for new equipment funded by NSF. The institution paid for those services out of its NSF award funds. The contractor had an arrangement with its broker to receive a commission on bonds for several federal government projects including the work paid for under the NSF award. The NSF awardee was unaware of the contractor's fraudulent activities. As part of the settlement, the contractor agreed to return double the actual funds involved to the federal government.

University Employee Debarred for Embezzling NSF Funds

Pursuant to OIG's recommendation, NSF debarred a former employee of a California university from obtaining the benefits of federal awards for a period of two years. As reported previously,[6] a federal district court convicted the employee of stealing $40,899 in grant money from an NSF sponsored research facility following an OIG investigation. The court sentenced the employee to 30 days in prison followed by 150 days of home confinement and 3 years of supervised release. The university restored the stolen funds to the account for the NSF award.

Employee Suspended for Downloading Inappropriate Files on Agency Computers

We previously[7] summarized the case of an NSF employee who used NSF computers and internet access to visit adult web sites and download sexually explicit photographs and videos. We submitted our findings to NSF, which suspended the subject for five days.

Participant Support Funds Returned

The National Science Foundation provides participant support funds in grants to cover the cost of transportation, per diem, stipends and other related costs for participants or trainees (but not employees) in connection with NSF-sponsored conferences, meetings, symposia, training activities and workshops. This is a restricted budget category, and in award letters, grantees are advised that NSF requires them to obtain written authorization from the cognizant NSF program officer prior to the reallocation of funds budgeted

OIG summer interns discuss their experiences performing program evaluations and investigations.

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[6] March 2004 Semiannual Report, p.26, and September 2004 Semiannual Report, p.26
[7] March 2005 Semiannual Report, p.30.

for participant support. Our experience suggests that many grantees are either unfamiliar or in non-compliance with this restriction. Our March 2005 Semiannual Report[8] describes the resolution of two cases in which grantees improperly reallocated participant support costs to purchase supplies and equipment and ultimately returned $30,000 to NSF. In this period several universities recognized they had misspent such funds and voluntarily returned funds to NSF for expenses related to PI travel, faculty and staff salaries, undocumented expenses, and furniture purchases. In the upcoming period we will summarize our results and send recommendations to NSF to ensure that both program officers and grantees clearly understand the agency's rules regarding the use of participant support funds, including the requirement for prior approval before reallocation.

Administrative Investigations

Actions by the Deputy Director

NSF Debars Fabricator

A previous Semiannual Report[9] described the case of a former graduate student in California who fabricated data used in proposals submitted to NSF and the National Institutes of Health, part of the Department of Health and Human Services (HHS). We forwarded a Report of Investigation to NSF's Deputy Director recommending that NSF jointly resolve this case with HHS, make a finding of research misconduct, and debar the subject for 3 years. While NSF did not jointly adjudicate the case with HHS, it otherwise followed our recommendations.

Agency Takes Action Against University Professor

In previous reports,[10] we discussed a case in which we recommended that NSF take action against a PI at a Michigan University who plagiarized text into both a declined proposal and an awarded proposal. Based on our investigation and recommendations, NSF: made a finding of research misconduct; sent the PI a letter of reprimand; prohibited him from serving as an NSF reviewer, advisor or consultant to NSF for 14 months; required written assurances from a university official with every proposal he submits until June 2007; and directed him to complete an ethics training course before the close of the calendar year.

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[8] March 2005 Semiannual Report, p.37.
[9] September 2004 Semiannual Report, page 32.
[10] September 2004 Semiannual Report, p.30, and March 2005 Semiannual Report, p.34.

NSF Agrees That PI Who Plagiarized, Fabricated, and Falsified Committed Research Misconduct

Based on the investigation reported in our last Semiannual Report,[11] NSF concluded that a PI who plagiarized, fabricated, and falsified text and figures in an unfunded NSF proposal committed research misconduct. NSF issued a letter of reprimand and: 1) required that the PI provide written certification with any documents he submits to NSF for three years; 2) required that his employer provide written assurance with any proposals he submits that they do not contain fabricated or falsified information; 3) required the PI to certify completion of an ethics training course on plagiarism within the next year; and 4) barred the PI from serving as a reviewer of NSF proposals for the next three years.

NSF Takes Final Action in Case of Data Fabrication

A previous Semiannual Report[12] described a report forwarded to the NSF Deputy Director about a post-doctoral researcher who fabricated data in a published research paper. The research work was supported by both NSF and HHS through an NIH grant. We recommended that NSF make a finding of research misconduct and debar the subject for two years. In May 2005, NSF took final action against the subject by making a finding of research misconduct against him and debarring him for two years. The subject also entered into a Voluntary Exclusion Agreement with HHS that includes an exclusion from serving in an advisory capacity to HHS for four years, and a certification requirement for proposals to HHS or reports of HHS-funded research lasting for two years after the end of the debarment period.

Reports Forwarded to the Deputy Director

Director of Grants Plagiarizes Text in Two NSF Proposals

Through an investigation we determined that the Director of Grants at a community college submitted two proposals as a PI in which he copied substantial portions of text. Although the proposals included meager citations for some of the passages, most passages were full paragraphs lacking quotation marks or some other means of differentiating the copied text from

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[11] March 2005 Semiannual Report, p.34.
[12] September 2004 Semiannual Report, p.28.

his own words. In instances when he did provide citations, they did not reasonably lead the reader to the source document.

Although we frequently refer investigations of this type to the institution, we did not refer this case because the community college did not have a research misconduct policy. Our investigation revealed that the PI was the Director of Grants, through whom all proposals submitted to various federal agencies flowed, and a professional grant writer who prepared the two proposals as a favor to the Co-PIs listed on the proposals. From the outset of our investigation, the PI accepted full responsibility for the copied text.

Given the unique set of circumstances in this case, we recommended that NSF make a finding of research misconduct against the PI, send him a letter of reprimand, require him to certify completion of a course in scientific ethics, and require him to certify that any documents he submits to NSF for one year following its finding of research misconduct do not contain plagiarized material.

PI's Plagiarism was Part of a Pattern

An OIG investigation concluded that a foreign PI committed plagiarism on multiple proposals submitted to or reviewed by NSF. One proposal was submitted to NSF when the subject was a visiting scientist at a Virginia university, while two other proposals were submitted to another federal agency program that NSF administers. Since the PI was not permanently employed by a U.S. institution, we conducted our own investigation. Our investigation indicated that the subject's declined NSF proposal contained a substantial amount of text copied from multiple sources, as did the two proposals that were submitted to the scientific program that NSF administers for another federal agency.

We recommended that NSF make a finding of research misconduct, issue a letter of reprimand, bar the subject from receiving any federal grant monies for a period of three years, and prevent the subject from serving as a peer reviewer, advisor or consultant for a period of three years.

Graduate Student Fabricates Data in Thesis

A graduate student working with NSF support at a university in Wisconsin fabricated data in a draft of two chapters of her thesis submitted to her thesis advisor. The university informed us it had completed an investigation into an

allegation that the graduate student fabricated data, and concluded it was true. After initially denying the allegation, the graduate student confessed to having fabricated some of the data in the draft, expressed remorse for her behavior, and worked without pay to complete the analyses that were originally fabricated. The university determined that no fabricated data had been published or used in any other inappropriate manner, and that it had no impact on the work represented by the thesis. After the graduate student expunged the fabricated data from the thesis, the university permitted the graduate student to complete her Ph.D. The university reprimanded the graduate student, noted in her official record that she had been found to have committed academic misconduct, and notified the student's new employer of the academic misconduct decision. As a result of our investigation, we concluded that the graduate student committed research misconduct when she fabricated data. We recommended that NSF send a letter of reprimand informing her she has been found to have committed research misconduct.

Significant Administrative Cases

PI Careless in Preparing Current and Pending Support Forms

A PI's Current and Pending Support (CPS) forms, submitted with each of his numerous NSF proposals over the past 5 years, contained multiple instances of incorrect and/or contradictory information. When we wrote to the PI requesting an explanation, he took the matter to his university provost for review. At the provost's request, we referred our inquiry to the university. In its report, the university determined that it had failed, in part, to provide appropriate oversight related to information supplied by its PIs on CPS forms. The university concluded that the PI did not provide the full appropriate information on the CPS forms submitted with his NSF proposals, and that he misunderstood the information requirements of the CPS forms, in part, because the explanations provided by NSF were not always clear. The university found no basis to believe that the PI's actions involved intentional violations of rules or knowing attempts to mislead NSF. As a result of this case, the university is taking specific actions to ensure better compliance from all its PIs.

"Clerical Oversights" May Be Indicators of Larger Problems for Compliance with Human Subjects Regulations

In recent Semiannual Reports,[13] we identified several instances of awardees' failure to adhere to the Common Rule for the Protection of Human Subjects (the Common Rule), and/or NSF policies for reporting the involvement of human subjects. The awardees initially cited "clerical oversights" to explain the lapse in compliance, but in each instance further review revealed a systemic problem at the institution. Each of the institutions demonstrated a willingness to correct the problems but also expressed confusion with NSF procedures and policies.

In one case, we learned that an institution with more than $67 million in active NSF awards failed to properly document and report its research with human subjects. That institution received not only research grant funds from NSF but also contracts to produce reports for NSF. Our review of the institution's full NSF portfolio identified 18 awards, including a Research Experiences for Undergraduates (REU) site award and its subsequent renewal, that were lacking the appropriate NSF Cover Page designations and follow-up materials. For the contracts, we learned that the institution and the NSF program office erroneously relied on OMB approval under the Paperwork Reduction Act making review under the Common Rule unnecessary. We identified the problem areas for the institution, which eventually took steps to review the projects and submit updated information to NSF.

In two other cases, we identified REU sites funded by NSF that failed to report the involvement of human subjects. At one institution, undergraduates were involved in testing software on young children for various therapeutic and diagnostic purposes. At both institutions, the award included a component for the evaluation of the effectiveness of the REU program in achieving its goals. The evaluations included activities such as student tracking, interviews, and surveys, which met the definition of human subjects research under the Common Rule. Both institutions cited "clerical oversights" and misunderstandings regarding NSF policies to explain why neither made the appropriate designation on the NSF proposals.

Both institutions agreed to initiate internal reviews of their portfolios of active awards and pending proposals. One institution completed its review

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[13] March 2004 Semiannual Report, p.28, September 2004 Semiannual Report, p.32, and March 2005 Semiannual Report, p.36.

of 19 proposals and awards, finding numerous failures to provide NSF with the required human subjects information. That institution has modified its internal pre-proposal processing procedures and its Internal Review Board processes to ensure that the appropriate reviews are completed and reported to NSF in a timely manner. The other institution, having a much larger portfolio to review, is expected to report its results to us soon.

These cases are consistent with our observation in past cases that seemingly careless "clerical oversights" may be indicators of broader systemic problems with institutional understanding of and compliance with the Common Rule and NSF policies and procedures. These cases also suggest that the REU program may be prone to lapses in compliance, especially with regard to the evaluation of undergraduates' performance during and after their REU experience. We are preparing a comprehensive set of recommendations for NSF, targeted at improving human subjects research compliance at NSF and the research communities it serves.

Reviews

Online Availability of Lobbying Disclosure Form

We recommended that NSF make an important lobbying disclosure form available on FastLane, its online electronic proposal submission system. FastLane strives to provide all forms and certifications needed for submission of a grant proposal. A federal law, known as the Byrd Amendment, imposes restrictions on the lobbying activities of applicants for and recipients of federal grants and cooperative agreements, and requires that information about lobbying activities be provided on a designated form when applying for federal funds. We determined that NSF's instructions for the submission of proposals well inform applicants of the need to provide the lobby disclosure, but do not provide a means to do so. Accordingly, we recommended that NSF modify FastLane to make the lobbying disclosure form readily available to applicants.

Statistical Data

Reporting Terms Defined

Some of the more common terms that we use in reporting audit statistics and findings are defined below:

Questioned Cost. Auditors question costs because of an alleged violation of a provision of a law, regulation, grant, cooperative agreement, or contract. In addition, a questioned cost may be a finding in which, at the time of the audit, either a cost is not supported by adequate documentation, or the expenditure of funds for the intended purpose is deemed unnecessary or unreasonable.

Unsupported Cost. A cost that is questioned because it is not supported by adequate documentation at the time of audit.

Management Decision. Management's evaluation of the findings and recommendations included in the audit report and the issuance of a final decision by management containing its response to such findings and recommendations. It is important to note that NSF is responsible for making a management decision regarding questioned costs that determines whether they will be sustained (i.e., disallowed) or allowed.

Funds Put to Better Use. Audit recommendations that identify ways to improve the efficiency of programs frequently lead to prospective benefits over the life of an award or funds put to better use. Examples include reducing outlays, deobligating funds, or avoiding unnecessary expenditures.

Final Action. The completion of all management actions that are described in a management decision with respect to audit findings and recommendations. If management concluded that no actions were necessary, final action occurs when a management decision is issued.

Compliance or Internal Control Issues. Audits often result in recommendations either to improve the auditee's compliance with NSF and federal regulations, or to strengthen the auditee's internal control structure to safeguard federal funds from fraud, waste, abuse, and mismanagement.

Audit Reports Issued with Recommendations for Better Use of Funds

	Dollar Value
A. For which no management decision has been made by the commencement of the reporting period	$620,020
B. Recommendations that were issued during the reporting period	$0
C. Adjustments related to prior recommendations	$0
Subtotal of A+B+C	$620,020
D. For which a management decision was made during the reporting period	$620,020
i) Dollar value of management decisions that were consistent with OIG recommendations	$620,020
ii) Dollar value of recommendations that were not agreed to by management	$0
E. For which no management decision had been made by the end of the reporting period	$0
For which no management decision was made within 6 months of issuance	$0

Audit Reports Issued with Questioned Costs

	Number of Reports	Questioned Costs	Unsupported Costs
A. For which no management decision has been made by the commencement of the reporting period	14	$43,638,922	$4,474,678
B. That were issued during the reporting period	12	$2,006,813	$1,053,491
C. Adjustment related to prior recommendations	0	$0	$0
Subtotal of A+B+C	26	$45,645,735	$5,528,169
D. For which a management decision was made during the reporting period	10	$1,055,221	$27,938
i) dollar value of disallowed costs	N/A	$368,895	N/A
ii) dollar value of costs not disallowed	N/A	$686,326	N/A
E. For which no management decision had been made by the end of the reporting period	16	$45,590,514	$5,500,231
For which no management decision was made within 6 months of issuance	5	$42,610,379	$4,473,418

Audit Reports Involving Cost-Sharing Shortfalls

	Number of Reports	Cost-Sharing Promised	At Risk of Cost Sharing Shortfall (Ongoing Project)	Actual Cost Sharing Shortfalls (Completed Project)
A. Reports with monetary findings for which no management decision has been made by the beginning of the reporting period:	4	$13,959,578	$194,989	$6,844,395
B. Reports with monetary findings that were issued during the reporting period:	3	$6,535,441	$798,932	$323,704
C. Adjustments related to prior recommendations		$244,080	$0	$0
Total of Reports with Cost Sharing Findings (A+B+C)	7	$20,739,099	$993,921	$7,168,099
D. For which a management decision was made during the reporting period:	N/A	$1,824,432	$53,875	$207,112
1. Dollar value of cost-sharing shortfall that grantee agreed to provide	N/A	N/A	$53,875	$0
2. Dollar value of cost-sharing shortfall that management waived[14]	N/A	N/A	$0	$207,112
E. Reports with monetary findings for which no management decision has been made by the end of the reporting period	5	$18,914,667	$940,046	$6,960,987

[14] Indicates the dollar value waived by management primarily due to additional documentation provided during audit resolution to support the questioned amounts.

Status of Recommendations that Involve Internal NSF Management Operations

Open Recommendations (as of 9/30/05)

Recommendations Open at the Beginning of the
   Reporting Period   **84**
New Recommendations Made During Reporting Period   **36**
Total Recommendations to be Addressed   **120**

Management Resolution of Recommendations[15]

Awaiting Resolution   **32**
Resolved Consistent With OIG Recommendations   **88**

Management Decision That No Action is Required   **0**

Final Action on OIG Recommendations[16]

Final Action Completed   **34**
Recommendations Open at End of Period   **86**

Aging of Open Recommendations

   Awaiting Management Resolution:
      0 through 6 months   **19**
      7 through 12 months   **9**
      More than 12 months   **4**

   Awaiting Final Action After Resolution:
      0 through 6 months   **17**
      7 through 12 months   **20**
      More than 12 months   **17**

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[15] "Management Resolution" occurs when the OIG and NSF management agree on the corrective action plan that will be implemented in response to the audit recommendations.

[16] "Final Action" occurs when management has completed all actions it agreed to in the corrective action plan.

List of Reports

Internal Reviews and CPA Performed Audits

Report Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds	Cost Sharing At-Risk
05-1-007	School District of Pittsburgh	$909,715	$894,699	$0	$798,932
05-1-008	University of California, Berkeley-Peer Center	$15,819	$13,071	$0	$0
05-1-010	UNAVCO, Inc.	$0	$0	$0	$0
05-1-011	American Geophysical Union	$198,548	$0	$0	$0
05-2-008	NSF's FY 2004 Management Letter	$0	$0	$0	$0
05-2-011	Thrift Savings Plan Review	$0	$0	$0	$0
	Total:	**$1,124,082**	**$907,770**	**$0**	**$798,932**

NSF-Cognizant Reports

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
05-4-014	Dallas Independent School District	$0	$0	$0
05-4-003	Town of Hudson, MA	$12,763	$12,763	$0
05-4-004	The Shodor Education Foundation	$26,678	$26,678	$0
05-4-007	Associated Universities, Inc.	$0	$0	$0
05-4-012	School District of Omaha	$0	$0	$0
05-4-013	American Institute of Mathematics	$0	$0	$0
05-4-019	School District of Omaha, Douglas County	$0	$0	$0
05-4-020	National Video Resources, Inc.	$0	$0	$0
05-4-021	Setting Priorities for Retirement Years, Inc.	$0	$0	$0
05-4-018	Brownsville Independent School District	$0	$0	$0
05-4-017	Clark County School District NV	$0	$0	$0
05-4-023	Clark County School District	$0	$0	$0
05-4-024	Texas A&M Research Foundation	$0	$0	$0
05-4-031	Austin Independent School District	$0	$0	$0
05-4-025	Public School of the City of Ann Arbor	$0	$0	$0
05-4-026	Michigan State University	$0	$0	$0
05-4-027	Jackson Public School District	$0	$0	$0
05-4-028	Milwaukee Public Schools	$0	$0	$0
05-4-032	Technical Education Research Centers, Inc.	$0	$0	$0
	Total:	**$39,441**	**$39,441**	**$0**

Other Federal Audits

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
05-5-040	SRI International	$18	$0	$0
05-5-050	State of Florida	$654,887	$0	$0
05-5-088	Blackfeet Community College	$21,322	$0	$0
05-5-085	Alfred University	$106,280	$106,280	$0
05-5-063	Administrators of Tulane Educational Fund	$29,364	$0	$0
05-5-070	Dickinson College	$30,946	$0	$0
05-5-110	Kentucky State University	$473	$0	$0
	Total:	**$843,290**	**$106,280**	**$0**

Audit Reports With
Outstanding Management Decisions

This section identifies audit reports involving questioned costs, funds put to better use, and cost sharing at risk where management had not made a final decision on the corrective action necessary for report resolution within 6 months of the report's issue date. At the end of the reporting period there were five reports remaining that met this condition. The status of recommendations that involve internal NSF management is described on page 40.

Investigations Case Activity

April 1, 2005 - September 30, 2005

	Preliminary	Civil/Criminal	Administrative	Total
Active Cases at Beginning of Period	31	55	48	134
Opened Cases	116	39	57	212
Closed Cases	121	35	44	200
Active Cases at End of Period	26	59	61	146

Investigations Case Statistics

Referrals to DOJ	**2**
Criminal Convictions/Pleas	**0**
Civil Settlements	**1**
Administrative Actions	**6**
Investigative Recoveries	**$1,888,971**
Research Misconduct Findings	**2**
Cases Forwarded to NSF Management for Action	**4**
Cases Forwarded to NSF Management in Prior Periods Awaiting Action	**1**

Assurances and Certifications[17]

Number of Cases Requiring Assurances During This Period	**5**
Number of Cases Requiring Certifications During This Period	**3**
Assurances Received During This Period	**0**
Certifications Received During This Period	**0**
Number of Debarments in Effect During This Period	**9**

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[17] NSF accompanies some actions with a certification and/or assurance requirement. For example, for a specified period, the subject may be required to confidentially submit to OIG a personal certification and/or institutional assurance that any newly submitted NSF proposal does not contain anything that violates NSF regulations.

Freedom of Information Act and Privacy Act Requests

Our office responds to requests for information contained in our files under the Freedom of Information Act ("FOIA," 5 U.S.C. paragraph 552) and the Privacy Act (5 U.S.C. paragraph 552a). During this reporting period:

- We received 9 FOIA requests. We responded to 8 with a response time that ranged between 2 and 16 days, with a median of 11 days and the average 10 days.

- We received 1 Privacy Act request.

- We received 2 appeals, which were both denied.

October 14, 2005

MEMORANDUM

To: **Dr. Warren Washington**
           Chair, National Science Board

           Dr. Arden Bement
           Director, National Science Foundation

From: **Dr. Christine C. Boesz**
           Inspector General, National Science Foundation

Subject: **Management Challenges for NSF in FY 2006**

In accordance with the Reports Consolidation Act of 2000, I am submitting our annual statement summarizing what the Office of Inspector General (OIG) considers to be the most serious management and performance challenges facing the National Science Foundation (NSF). We have compiled this list based on our audit and investigative work, general knowledge of the agency's operations, and the evaluative reports of others, such as GAO and NSF's various advisory committees, contractors, and staff.

This year's management challenges are organized under seven broad issue areas: award administration; human capital; budget, cost and performance integration; information technology; procurement; U.S. Antarctic Program; and merit review. Ten challenges remain from last year's list, most of which reflect areas of fundamental program risk that are likely to require management's attention for years to come. We are pleased to note that NSF has made progress this past year on several longstanding challenges.

Five new management challenges appear this year: promoting integrity, project reporting, contract monitoring, environmental liabilities in the Antarctic, and unfunded proposals. One challenge pertaining to the management of the Math and Science Partnership has been removed from this years list, as the agency has successfully managed the program through its critical early stages and has implemented recommendations OIG made in its July 2004 audit report.

If you have any questions or need additional information, please call me at 703-292-7100.

Award Administration

Post-award administration policies. During the past year, NSF has made progress toward strengthening its post-award monitoring of grantee institutions, but has not yet established an effective program for monitoring high-risk institutions. The agency has improved its documentation procedures, and expanded its monitoring program to cover low and medium risk grantees, in addition to those that are considered high-risk.   It has also developed standard operating guidance for monitoring all grants and cooperative agreements, and two components of advanced post-award monitoring: the Award Monitoring and Business Assistance Program (AMBAP) which guides the reviews of awardees with high-risk grants; and Total Business System Reviews (TBSR) that apply to Federally Funded Research and Development Centers (FFRDCs) and large facilities.

However, NSF's program does not ensure that all high-risk institutions are adequately monitored. Although NSF identified 167 institutions that are high-risk, it conducted only 25 site visits during the past year. While some of the remaining 142 institutions are in the last year of their NSF award period and may not warrant a site visit, most will receive additional awards, and a number of them have recently had audits that identify grant management problems. The agency has not specified how or whether it intends to monitor high-risk institutions that are not visited. NSF has performed 60 evaluations of high-risk awards under AMBAP over the past two years, and plans to conduct TSBRs of each of NSF's four FFRDCs over a 4-year cycle. Since both types of advanced post-award monitoring rely on on-site evaluations for which the availability of travel funds has been problematic in the past, the effectiveness of the new policies is still being assessed.

Management of large infrastructure projects. NSF's management of large science infrastructure projects has been listed as a management challenge since two OIG audits conducted several years ago found weaknesses in their financial management.[1]

In response to audit recommendations to enhance organizational accountability, provide better financial guidance, and capture more information about project costs, NSF established a Large Facility Projects Office (LFPO) and hired a Deputy Director to coordinate its activities. Last December, OIG assessed the progress made by LFPO in developing and implementing its

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[1] Audit of the Financial Management of the Gemini Project, December 15, 2000, OIG 01-2001; Audit of Funding for Major Research Equipment and Facilities, May 1, 2002, OIG 02-2007

project management guidelines and central cost-tracking system.[2] We found that progress toward issuing the guidance and providing oversight of current large facility projects has been slow, constrained by workload and staffing issues. The assessment found that LFPO had only two permanent staff.

These findings were similar to those that appeared in separate reviews by two other groups. A report by the National Academies last year concluded that the LFPO "needs adequate and experienced project construction and management staff, access to qualified consultants and contractors, and the institutional authority to oversee the design engineering, construction, and operation phases adequately."[3] In May 2005, NSF's Advisory Committee for Business and Operations (AC/B&O) reviewed NSF's progress and said: "the implementation of adequate project management methods for MREFC projects during the Development Stage seriously lags the National Academies Report recommendations as well as NSF policy guidance."[4] The Committee also criticized NSF's "under-investment" in engineering, cost-estimating, and project management support during the development stage when baseline project definitions are being formulated. The agency has stated that testing of the cost-tracking system will be completed during the first quarter of FY 2006.

Cost-sharing. While federal guidelines require that cost-shared expenses be accounted for in a manner consistent with federal expenditures, our audit work has revealed that in practice many awardees do not adequately document or substantiate the value of cost-shared expenditures, raising questions about whether required contributions are actually being made. Concerned that NSF's policy allowing cost-sharing gave an unfair advantage to wealthier institutions in competing for awards, the National Science Board voted in October 2004 to eliminate program-specific, cost-sharing requirements and maintain only the statutory cost-sharing of one percent. As a result, the amount of new cost-sharing commitments declined in FY 2005 and this trend is likely to continue.

However, remaining commitments entered into before the new policy was implemented still represent a significant amount, and recent investigations and audit reports indicate that cost-sharing problems have not declined despite NSF's efforts to provide greater oversight in its risk assessment protocol and site reviews. Cost-sharing was an issue in two recent high-profile

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[2] Survey of Large Facility Projects Management and Oversight Division, December 29, 2004, OIG 05-6002

[3] Setting Priorities for Large Research Projects Supported by the National Science Foundation, p.31.

[4] Letter dated May 25, 2005 to Anthony Arnolie and Thomas Cooley from the Committee for Business and Operations.

investigations of institutions. Also, in our March 2005 Semiannual Report to Congress, we reported on audits of awards that included approximately $14 million in promised cost-sharing. Shortfalls of $6.8 million were reported for these awards. Since the awards were contingent on the contributions of the awardees, and the new policy was not implemented retroactively, NSF should continue to be vigilant in ensuring that awardees live up to their commitments. To treat these awards otherwise would require NSF to finance a significant additional cost, and/or risk not completing or reducing the original scope of the research project.

Promoting integrity. The research community is again debating whether integrity in research is eroding as science enters the 21st century. A recent survey[5] found that one- third of NIH-supported researchers surveyed acknowledge engaging in activities that are best described as questionable research practices. The authors concluded that the "range of questionable practices . . . are striking in their breadth and prevalence." We have observed the types of practices these scientists admitted to during our investigations and concluded they are not unique to NIH-supported researchers. They can reasonably be expected to be practiced by scientists supported by other federal agencies. Separate from the more serious behaviors defined as research misconduct (falsification, fabrication, and plagiarism) these questionable practices damage the integrity of science and erode the trust one scientist places in another, which can in turn undermine the reliance NSF's merit review system places in the quality of the proposals it receives.

HHS, through its Office of Research Integrity, has embarked on an effort to require institutions to instruct HHS-supported personnel (students, faculty, support staff) in key elements of its Responsible Conduct of Research program to formalize and standardize training and create baseline expectations and rules for integrity throughout the enterprise. Similarly, we discuss these elements in our outreach to the research and education community as part of our mission to prevent and detect fraud and abuse. However, unlike, HHS, NSF has no parallel, standardized effort to reinforce its expectations for high scholarship and integrity throughout its proposal and award systems.

From our perspective, the opportunities to commit research misconduct and the pressures to do so are certainly increasing. The survey authors found "significant associations between scientific misbehavior and perceptions of inequities in the resource distribution processes in science." Such perceptions have significant potential for harm to the research enterprise, and thus present

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[5] Martinson, B.C.; Anderson, M.S. and R. de Vries; Scientists behaving badly; *Nature:*Vol. 435 pp. 737-738, 9 June 2005.

a management challenge to NSF to seek new opportunities and means to ensure integrity within the research community and within the pipeline of students NSF is charged with educating.

Human Capital

Workforce planning. Strategic workforce planning refers to a process of determining the appropriate number of employees and competencies needed to carry out the agency's strategic goals. NSF's growing workload has kept workforce planning a formidable management challenge. In FY 2004, the number of proposals NSF received increased to 43,851, up 49 percent since FY 2000. However during this time period the number of program officers, who determine which proposals are funded, actually *declined* from 396 to 385. As a result, the average number of proposals each program officer handles per year has increased from 74 to 113, during a time when proposals are becoming more complex and reflect a more multidisciplinary orientation.

In 2002, NSF contracted for a multi-year, multi-million dollar *Business Analysis*, to review NSF's management of human capital, business processes, and use of technology. An important part of the project was the development of a Human Capital Management Plan to enable NSF to make informed and timely decisions about the type, number and required competencies of NSF positions. During the past year, the human capital project managers have focused on streamlining and refining the agency's core competencies and redesigning administrative jobs. Although the *Business Analysis* was scheduled for completion at the end of FY 2005, the agency was not able to fully fund it during some years and has extended the completion date.

Three years into the *Business Analysis* project NSF has still not achieved its goal of establishing a strategic workforce planning process. This past year, the agency decided to pursue workforce planning on a separate track from the *Business Analysis* with the assistance of another contractor. NSF is hopeful that it can implement the new process during the next year. However, in the short term, workforce plans will continue to be based on the best estimates of NSF's senior managers, as it has in past years. As indicated by the growing disparity between the science and engineering workforce and the proposal workload, the need for informed and effective workforce planning grows increasingly urgent.

NSF's non-permanent workforce. NSF's workforce includes a significant number of non-permanent or visiting personnel on loan from their home institutions or agencies. In FY 2004, 50 percent of NSF's program officers were non-permanent employees commonly referred to as *rotators*.

The rotators make a valuable contribution to NSF by providing the directorates current knowledge of their disciplines and a different perspective formed by their recent experiences as researchers. They enable NSF to achieve its goal of investing in the best science.

However, the employment of rotators poses an administrative challenge that requires careful planning and management. More frequent recruiting, hiring, and training are required for their support and replenishment. In addition, rotating staff serving in more senior levels lack needed institutional knowledge and are less likely to make long-term planning a priority. It is important that the agency recognize the areas in which rotators need additional management support and provide it. Also, in July 2004, OIG conducted an audit of the costs associated with visiting personnel and made three recommendations for resolving issues related to their employment and compensation. While NSF concurred with each recommendation, corrective actions are not yet complete.

Administrative infrastructure. The size and effectiveness of NSF's workforce are limited in some ways by the agency's administrative infrastructure. Internal control reviews performed by the agency in response to the Federal Managers' Financial Integrity Act (FMFIA) continue to indicate that key administrative needs of agency managers are not being met. This year many of the comments made by managers cite a lack of adequate support in the area of human resource management. As it takes longer for hiring actions to be processed, there is a growing perception within the agency that the personnel area is not adequately staffed to provide needed support. Many managers also reported problems in using *e-recruit* and *Quick Hire*, two systems that are intended to simplify and streamline the hiring process.

As in the past, many of the managers' internal control certifications emphasized a particular need for more office space and travel funds. One Assistant Director stated "space remains a critical issue, impeding recruitment of high quality staff and limiting the ability to store sensitive documents." Another said that resources to "support travel to monitor on-site performance remain inadequate in an environment that places increasing emphasis on program impact, project yield, and the monitoring of fraud, waste and abuse." These shortages impede the ability of staff to do its job.

Budget, Cost, and Performance Integration

GPRA reporting. For an agency engaged in funding basic research, implementing the Government Performance and Results Act (GPRA) is intrinsically challenging because the knowledge acquired through its funding may not lead to practical application for many years, if at all. In 1999, the

National Academies Committee on Science, Engineering, and Public Policy indicated in a report that federal research programs could best be evaluated by a process of expert review that uses three criteria: quality, relevance, and leadership.[6] NSF has long consulted with external experts through its independent advisory committees and committee of visitors programs that periodically evaluate each part of the organization on its performance against operational and strategic goals. More recently it has integrated these practices with GPRA and Program Assessment Rating Tool, a method of program evaluation developed by the Office of Management and Budget (OMB). The agency is to be commended for the effort it has invested in continually improving its GPRA program, one that is in many respects a model for the federal community.

The Advisory Committee on GPRA, which assesses NSF's performance on its strategic objectives, found that the agency demonstrated significant accomplishment on 15 of its 16 strategic goals related to People, Ideas, and Tools. It worked with the Advisory Committee for Business and Operations to evaluate NSF's remaining strategic goals related to Organizational Excellence and decided that the agency had significantly accomplished these strategic goals as well. However the committee suggested NSF could improve its GPRA reporting process if it did a better job of demonstrating the relevance of its accomplishments to its outcome goals. It stated, "In the absence of more contextual information, we are often left wondering how strong the linkage is between the accomplishments and the outcome goals."[7] NSF should respond to this recommendation by better demonstrating the relevance of its accomplishments to its objectives.

Cost information. NSF does not track the cost of its internal business processes or utilize to best advantage measures to assess the efficiency and cost-effectiveness of these business processes. The agency has worked with OMB during the past two years to enable its cost accounting system to track the cost of its strategic goals as well as its 10 investment categories that are subject to OMB evaluation. This information is important in evaluating program results. However the agency does not know how much it costs to perform a routine activity such as reviewing a proposal or administering a grant. Such basic information is equally important in managing NSF's operations.

As NSF staff struggle to keep up with a growing workload, the issue for the agency is not whether it is working hard, but whether it is working efficiently.

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[6] Evaluating Federal Research Programs: Research and the Government Performance and Results Act

[7] Report of the Advisory Committee for GPRA Performance Assessment, July 25, 2005; p.57

Information about the cost-effectiveness and efficiency of its workforce and work processes is critical to finding solutions. As an example, the agency employs several different methods of merit review, which may vary in terms of cost and effectiveness. A cost/benefit analysis of each method could provide valuable information about how best to handle the work.

Improving the efficiency of government agencies has been an important priority of present and past administrations. NSF states that its historic overhead rate of 5-6 percent indicates that it is operating efficiently, and that it is more important for managers to focus on results than costs to ensure quality. We believe that both costs and results are important and that management should reconsider its use of measures for efficiency and cost effectiveness as a means to set funding priorities and maximize its limited resources.

Project reporting. A recent OIG audit uncovered weaknesses in NSF's collection of project reports, which captures information on the progress and results of awards. Project reports not only provide NSF with important scientific information, but also enhance accountability for federal funds by serving as a permanent record of what was purchased with taxpayers' money. Auditors found that over a five-year period approximately 47 percent of the 151,000 final and annual reports required by the terms and conditions of NSF's awards and cooperative agreements were submitted late or not at all. Of 43,000 *final* project reports, 8 percent were never submitted and 53 percent were submitted an average of 5 months late. Moreover, although NSF has a policy of not making new awards to Principal Investigators (PIs) who have not submitted final project reports, there were 74 instances (13%) in which delinquent PIs inappropriately received new funding. NSF agreed with the report's recommendations and is taking corrective action.

Information Technology

Information security. A strong and effective information security program is crucial to the success of virtually all of NSF's activities and operations. As GAO recently stated: "Federal agencies rely extensively on computerized information systems and electronic data to carry out their missions. The security of these systems and data is essential to prevent data tampering, disruptions in critical operations, fraud, and inappropriate disclosure of sensitive information."[8] As we have reported over the past several years, NSF has made good progress in strengthening its information security program.

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[8] GAO Report 05-55

However, the constantly changing nature of security risks and threats makes IT security an ongoing challenge. An effective IT security program should above all be adaptable to the changing environment. Recognizing the pervasive nature of information security problems within federal agencies, Congress passed the Federal Information Security Management Act (FISMA) in 2002. FISMA requires agencies to develop, document, and implement an agency-wide information security program to provide security for the information and information systems that support the operations and assets of the agency, including those provided or managed by another agency, contractor, or other source.

FISMA requires inspectors general to conduct annual evaluations of their agency's information security program. In our 2005 FISMA Independent Evaluation Report, we noted that NSF has continued to strengthen its security program but needed to make improvements in the areas of personnel background investigations, the U.S. Antarctic Program information security program, access controls, security plans, risk assessments, disaster recovery testing, change controls, and incident response procedures. An ever changing information security environment requires all federal agencies to maintain a strong, effective, and vigilant security program.

Procurement

Contract monitoring. NSF's FY 2004 financial statement audit identified a reportable condition[9] that the agency does not adequately review public vouchers submitted by contractors who receive advance payments. Without a proper review, over $150 million of NSF's annual contract expenditures may be subject to error or impropriety. NSF limits its review of vouchers to a comparison of the reported quarterly expenditures with the cumulative advance request amount and does not assess the validity, propriety, or accuracy of the actual incurred cost. Neither the contracting officer nor their technical representative reviews the voucher documents. Federal law requires that responsible officials review the public vouchers for accuracy and propriety, and to ensure that the reported costs are for authorized purposes under the contract.

A recent audit of Raytheon Polar Services Company (RPSC) that questioned $33.4 million in claimed expenditures underscores the large sums of money that are subject to advance payment and therefore at risk of misuse. Of the amount questioned, $21 million was charged as direct costs when it should have been recovered through RPSC's indirect cost rate, a violation of

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[9] A reportable condition is defined as a significant deficiency in internal controls that could adversely affect the agency's ability to report financial data.

Cost Accounting Standards and RPSC's disclosed federal accounting practices. RPSC also claimed $6.7 million that exceeded limitations specified in the contract. If NSF had adopted a policy requiring a more active review of vouchers, it is possible that the erroneous payments would have been caught at a much earlier point. The large amount of questioned costs resulting from this audit indicates that more scrutiny of advance payments and more internal control reviews are warranted. NSF is evaluating its options for resolving the questioned costs.

United States Antarctic Program

Long term planning. An audit of the USAP's Occupational Health & Safety and Medical Programs performed in 2003 identified a need for long-term planning to assure that necessary capital assets are replenished on a regular basis and not pressed into service past their useful lives. The audit report cited examples of an aging infrastructure at McMurdo Station, which could pose unnecessary risks to the health and safety of program participants and recommended a separate line item in the budget dedicated to funding a capital asset management plan. In its response to the report, NSF said that its current practices were adequate and expressed concern that a dedicated fund would restrict financial flexibility needed to respond to the needs of researchers.

However, a recent Committee of Visitors (COV) Report charged with evaluating the Polar Research Support Section also cited the need for improved long-term planning. The report said that scientists who are aware of the existing logistical limitations in Antarctica rarely submit proposals requesting support that is difficult to provide. The result is that cutting edge science projects may well be limited by logistics capabilities. It recommends that the agency consider developing a long-term planning process that would involve scientists so that the agency could learn about the new ideas and consider attendant logistical challenges at the cutting edge of Antarctic science before they reach the proposal stage. The report also calls upon the agency to improve its projections of the actual costs of doing field and lab science in Antarctica to assure that novel but expensive science can be successfully planned for. The agency has responded positively to both COV recommendations.

Accounting for environmental liabilities. NSF's accounting practices may not be consistent with the intent of applicable accounting standards for the recognition and reporting of environmental liabilities in the Antarctic because of the unique status of the treaty that governs NSF's activities there.

The *Antarctic Treaty and the Antarctic Science, Tourism and Conservation Act of 1996* governs NSF's roles and activities in the Antarctic and states that NSF is responsible for the review, oversight, and remediation of environment incidents. Although NSF's General Counsel has argued that the agency does not have a *legal* liability related to environmental clean-up costs in Antarctica, the auditors suggest that the language of the treaty places the ultimate responsibility with NSF and recommended that NSF's responsibility for recording such liabilities should be reviewed by the Federal Accounting Standards Advisory Board (FASAB) to ensure that they are correctly reported. Depending on how FASAB decides the issue, NSF's environmental liability obligations may be understated in its financial statements.

Merit Review

Broadening participation. The Foundation is committed to broadening the participation of women and minorities in all NSF programs and activities. Increasing the number of applicants, awardees and reviewers from underrepresented groups that participate in the merit review process is a key objective, and is carefully monitored by the agency. Underrepresented groups made progress in FY 2004 in several respects. While the total number of awards made by NSF decreased, the number of awards made to women and minorities each increased. The number of proposals received from women and minorities also increased by 15 and 19 percent respectively compared to 9 percent among the overall population. Although, the success rates for the underrepresented groups both decreased, the declines were generally proportional to the overall population.

NSF has also continued to work to improve the number of merit reviewers who self-report demographic information. This year 17 percent of reviewers volunteered information, up from 9 percent in FY 2002. Thirty-five percent of those who responded indicated that they were part of an underrepresented group. Reviewer diversity ensures that the merit review process benefits from a wide variety of perspectives in arriving at its decisions, while raising awareness among those who participate about the grant-making process.

In this year's report on broadening participation in the sciences and engineering, the Committee on Equal Opportunities in Science and Engineering (CEOSE) noted the increase in grant applications among underrepresented groups since FY 2000, and cited three possible causes: 1) NSF's embedded diversity policy of 1999 which made diversity a part of each research and education directorate; 2) a FY 2000 policy change requiring all proposals to address societal impacts and; 3) the implementation of outreach activities aimed at increasing awareness among women and minorities of

NSF's programs.[10] CEOSE also observed that "evaluation of NSF programs with respect to broadening participation is uneven" and recommended that NSF expand its systematic and objective evaluation efforts by continuing to obtain, refine and disaggregate data and factors related to persons from underrepresented groups in STEM education and careers.[11]

Unfunded proposals. The rate at which NSF funds proposals (i.e., success rate) has declined significantly from 33 percent four years ago to 24 percent in FY 2004, the lowest in 15 years. Among proposals that undergo the competitive merit-review process[12] the funding rate is just 21.6 percent. During the past year, the rate of decline accelerated, as some key research directorates such as Computer and Information Science and Engineering were able to fund just 16 percent of the proposals they receive. Of particular concern is the increasing number of quality proposals for which there are no funds. The amount of money represented by these proposals that were rated as high as the average NSF award, increased by 46 percent in just one year from $1.44 billion requested to $2.1 billion in FY 2004.

As the agency notes, the decline of the success rate is a concern because declined proposals represent a rich portfolio of unfunded research and education opportunities. An unfavorable success rate may also discourage innovation and risk-taking among researchers who believe more risky projects are less likely to be funded. In addition, there is a significant economic cost to both NSF and the community in generating, processing and reviewing each research proposal. On average NSF conducts six reviews per proposal, a voluntary investment of time by scientists that is estimated to be in the tens of millions of dollars. Scientists must divert time from their research, training and education activities and spend more time on proposal development.[13] Ironically, the success rate has been adversely affected by NSF's efforts to increase grant size and duration, a policy initiated to reduce the amount of time scientists spend on writing proposals.

NSF is considering a number of ways of improving the success rate, including 1) reducing the number of proposals submitted by making requests for proposals more focused and technically specific, and 2) implementing a two-tiered proposal submission process that includes pre-proposals. NSF may also want to reconsider its rationale for increasing grant size and duration.

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[10] Broadening Participation in America's Science and Engineering Workforce, CEOSE 04-01, p. 32
[11] Ibid. p.101
[12] 1,457 proposals were not externally reviewed, including those for SGER awards and grants for travel and symposia. Approximately 1,236 awards were made from this group.
[13] According to the *National Science Foundation Report on Efficiency of Grant Size and Duration*, the average grant proposal requires 157 hours to prepare.

Reporting Requirements

Under the Inspector General Act, we report to the Congress every six months on the following activities:

- Reports issued, significant problems identified, the value of questioned costs and recommendations that funds be put to better use, and NSF's decisions in response (or, if none, an explanation of why and a desired timetable for such decisions). **(See pp. 5, 13, 35)**

- Matters referred to prosecutors, and the resulting prosecutions and convictions. **(See pp. 23, 46)**

- Revisions to significant management decisions on previously reported recommendations, and significant recommendations for which NSF has not completed its response. **(See pp. 18, 44)**

- Legislation and regulations that may affect the efficiency or integrity of NSF's programs. **(See p. 8)**

- OIG disagreement with any significant decision by NSF management. **(None)**

- Any matter in which the agency unreasonably refused to provide us with information or assistance. **(None)**

Acronyms

CCIG	Council of Counsels to Inspector Generals
CFO	Chief Financial Officer
COI	Conflict of Interest
COV	Committee of Visitors
CPS	Current and Pending Support
DACS	Division of Acquisition and Cost Support
DCAA	Defense Contract Audit Agency
DD	Deputy Director
DFE	Designated Federal Entity
DGA	Division of Grants and Agreements
DoD	Department of Defense
DoJ	Department of Justice
ECIE	Executive Council of Integrity and Efficiency
FASAB	Federal Accounting Standards Advisory Board
FFRDC	Federally Funded Research and Development Centers
FISMA	Federal Information Security Management Act
FOIA	Freedom of Information Act
GAO	General Accounting Office
GPM	Grant Policy Manual
GPRA	Government Performance and Results Act
HHS	Department of Health and Human Services
IG	Inspector General
IPA	Intergovernmental Personnel Act
IRB	Institutional Review Board
KMS	OIG Knowledge Management System
LFP	Large Facility Project Office
MIRWG	Misconduct in Research Working Group
MREFC	Major Research Equipment and Facilities Construction
NASA	National Aeronautic and Space Administration
NIH	National Institute of Health
NSB	National Science Board
NSF	National Science Foundation
OIG	Office of Inspector General
OMB	Office of Management and Budget
OPP	Office of Polar Programs
ORI	Office of Research Integrity
PCIE	President's Council on Integrity and Efficiency
PI	Principal Investigator
PFCRA	Program Fraud Civil Remedies Act

Acronyms (cont'd)

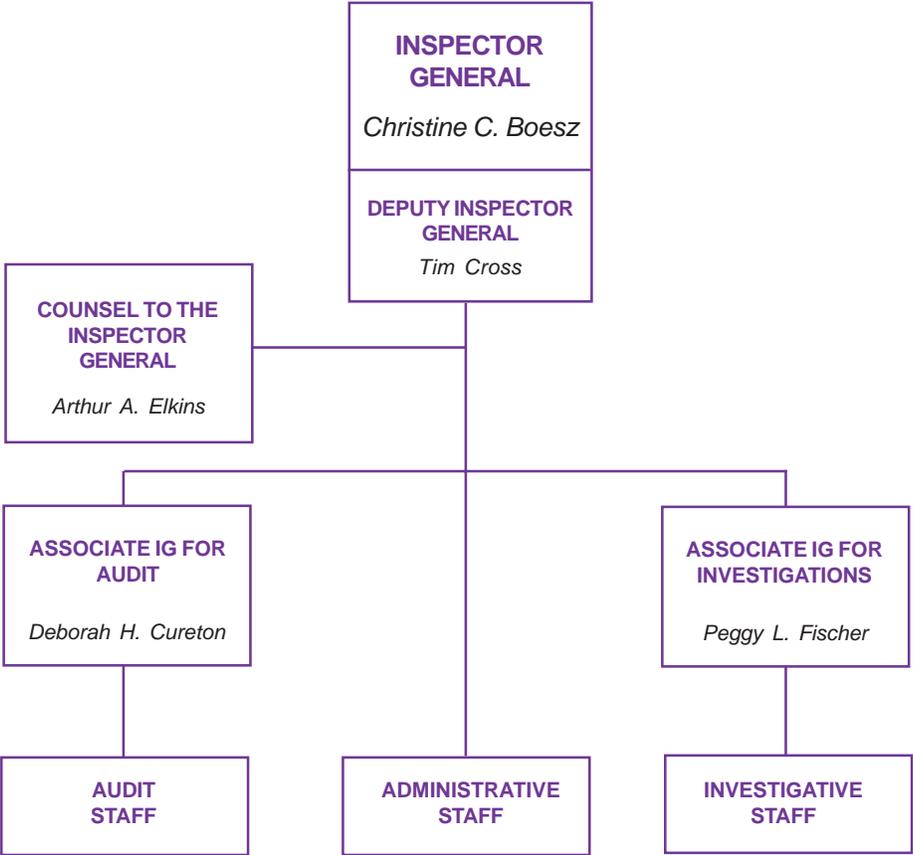|	
QCR	Quality Control Review
REU	Research Experiences for Undergraduates
SBIR	Small Business Innovation Research
STC	Science and Technology Centers
STTR	Small Business Technology Transfer
USAP	United States Antarctic Program
USI	Urban Systemic Initiative
USP	Urban Systemic Program

OIG Staff
Awards, Milestones

Matt Quinn, Head of Criminal Investigations, receives and award from Dr. Boesz.

Deputy IG Tim Cross presents an award to Danyale Wilson, Assistant Administrative Officer.

OIG Administrative Officer Barbara Palmer addresses her colleagues on her her retirement from federal service.

Organization Chart

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                        ┌─────────────────────┐
                        │     INSPECTOR       │
                        │      GENERAL        │
                        │                     │
                        │  Christine C. Boesz │
                        ├─────────────────────┤
                        │  DEPUTY INSPECTOR   │
                        │      GENERAL        │
                        │                     │
                        │     Tim Cross       │
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│  COUNSEL TO THE     │
│    INSPECTOR        │
│     GENERAL         │
│                     │
│  Arthur A. Elkins   │
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│  ASSOCIATE IG FOR   │                      │  ASSOCIATE IG FOR   │
│       AUDIT         │                      │    INVESTIGATIONS   │
│                     │                      │                     │
│ Deborah H. Cureton  │                      │  Peggy L. Fischer   │
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│       AUDIT         │  │   ADMINISTRATIVE    │  │    INVESTIGATIVE    │
│       STAFF         │  │       STAFF         │  │       STAFF         │
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