Semiannual Report to the Congress

September 2002

National Science Foundation

Office of 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 20,000 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 photograph: Peter West and Gloria vanKan/NSF
National Science Foundation Headquarters
Arlington, Virginia
September 11, 2002

From the Inspector General

Pursuant to the Inspector General Act of 1978, section 5(b), I am pleased to present this summary of our accomplishments for the six-month period ending September 30, 2002. As we approach the 25th anniversary of the Inspector General Act, I take great pride in the accomplishments and contributions of our own Office of Inspector General and the larger IG community. The audits, investigations, reviews and other activities described in this report have one common attribute: all are aimed at improving the accountability and performance of our awardee community, the National Science Foundation, and our own OIG.

The past six months have been a busy period. Our office issued 21 audit reports that identified $9.7 million in promised cost sharing that is at-risk of not being contributed, and an additional $869,133 in questioned costs. We also identified $444,103 in funds that could be put to better use. We closed 18 civil/criminal cases, 29 administrative cases, and made $327,973 in recoveries. We also referred two cases to the Department of Justice.

These are both exciting and challenging times for the science community and NSF. As the agency's budget continues to grow, and the complexity of science and technology increases, those of us involved with the agency's oversight must continuously improve our work methods to keep pace. Our OIG has recently undertaken several initiatives to improve our operations. We are in the process of developing a new knowledge management system that will improve efficiency. We have also enhanced the effectiveness of our annual audit planning by conducting a comprehensive risk assessment of NSF operations. Following on our strategic plan, we published our first performance plan last year, and plan to survey our employees each year to get their candid assessment of all of our efforts.

Finally, many changes have occurred in the leadership and composition of the National Science Board over the past six months. We warmly welcome Dr. Warren Washington as Chairman of the NSB, Dr. Mark Wrighton as Chairman of the Audit and Oversight Committee, and nine new members appointed last month by the President to the NSB who are awaiting Senate confirmation. The continuing support of the Board for this office over the past six months has been appreciated and has a direct bearing on our effectiveness. We look forward to working with NSB members, and the NSF Director and staff, to continue to improve an organization that already has many accomplishments.

Christine C. Boesz, Dr.P.H.
Inspector General
November 6, 2001

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Executive Summary

- The FY 2001 Management Letter Report discusses in detail the internal control findings referred to during the FY 2001 financial statement audit, including the reportable condition regarding post-award grant and asset management identified in the FY 2001 Independent Auditor's Report. The report also describes the need for NSF to improve its cost accounting and performance measurement systems in order to better assess the effectiveness and efficiency of NSF's operating performance. In addition, we completed our assessment of NSF's information security program required by GISRA (Government Information Security Reform Act). The report identifies three significant deficiencies for NSF to address. (See page15)

- At the request of a Senate subcommittee, we performed an audit of the funding for major research equipment and facilities projects to determine if NSF solely used its Major Research Equipment appropriation to fund these expenses. We found that, despite a concerted effort to improve its oversight of large projects, NSF's policies did not yet provide adequate guidance for program managers to manage the financial aspects of these projects. The policies allowed NSF to use multiple appropriation accounts to fund the acquisition and construction costs of major research equipment and facilities, and led to inconsistencies in the types of costs funded through the MRE account. NSF's practice was to track only those costs funded from the MRE account and not the full cost of the major research equipment and facilities. As a result, NSF could not ensure that it stayed within its authorized funding limits or that it provided accurate and complete information on the total costs of major research equipment and facilities. Although NSF did not concur with the report findings, it agreed to incorporate the report's recommendations into the Guidelines and Procedures it is developing for managing large facilities. (See page 18)

- To assess the extent of cost-sharing problems in NSF awards, we launched two audit initiatives: one at five campuses of a western state university system and the other at eight geographically diverse institutions throughout the United States. During this period, we are reporting on the last of these 13 audits. We completed a cost-sharing audit at a northeastern university that received five NSF awards with $3.8 million of required cost sharing and found that the university did not have an adequate

internal control structure for managing, accounting for, and reporting on its cost-sharing obligations. As a result of these problems, we were unable to conclude whether or not the $3.8 million of claimed cost sharing was allowable under Federal requirements. (See page 19)

- In this Semiannual Report, we summarize audits conducted of two NSF credit card programs, and describe the efforts of our investigative staff to monitor credit card use for improper purchases. Our audit of purchase card use makes seven recommendations for improvement of the program. Issues involving card security, irregular transactions, and the recording of accountable property, were referred to our auditors by investigative staff who conducted their own review. Meanwhile an audit of the travel card program found that while NSF is effectively monitoring and managing delinquent travel card accounts, its policies and practices do not yet address monitoring the unauthorized use of travel cards. (See pages 26, 37)

- Participants in two separate fraud schemes were debarred during this period. One involved an employee of an NSF-funded research center that had submitted fraudulent travel reimbursements. The employee pled guilty to theft/embezzlement from a program receiving Federal funds, paid restitution in the amount of $19,871, and was sentenced to three years probation and 150 hours of community service. NSF's Deputy Director informed the subject of a proposed debarment for a period of three years. In the second case, a laboratory technician/administrative assistant fraudulently endorsed and cashed 40 payroll checks payable to former temporary employees. Four Federal agencies lost a total of $50,484 over a 16-month period as a result of this scheme. Because the employee resigned, acknowledged responsibility for the fraud, and arranged to pay restitution, the Assistant U.S. Attorney declined to prosecute the case in lieu of administrative action. Consistent with our recommendation, the NSF Deputy Director debarred the subject for a period of two years. (See page 38)

- Previously we described a case in which a person seriously misrepresented his research progress and capabilities in proposals submitted to NSF. The Deputy Director found that the subject committed misconduct in science and required him to provide detailed certifications and assurances to OIG for two years starting in 1999, in connection with any proposal or report submitted to NSF. However the subject knowingly, deliberately, and repeatedly failed to provide the certifications and assurances that were required of him. The matter resulted in a settlement agreement that required the professor to provide detailed certifications and assurances in connection with any research proposals or reports he submits to NSF until October 25, 2003. The agreement also stipulated that any breach of the certification and assurance requirements will constitute a material breach of the agreement, warranting debarment under NSF's debarment regulation. (See page 42)

OIG Management Activities

Congressional Testimony

In May 2002, the Inspector General testified before the U.S. Senate, Committee on Appropriations, Subcommittee on VA, HUD, and Independent Agencies, to provide an update on the status of National Science Foundation's (NSF) efforts to address our FY 2002 management challenges, including post-award management, workforce planning, and large facilities management.

While NSF has a robust system of award management over its pre-award and award phases, Dr. Boesz stated that the agency needs to develop a more rigorous risk-based monitoring program for the post-award phase. Weak controls over post-award grant monitoring and tracking of NSF-owned assets in awardees' custody were cited as a reportable condition in the agency's most recent financial statement audit. Dr. Boesz also discussed the results of a report on the adequacy of NSF's workforce planning, a review previously requested by the Subcommittee (see page 27). Finally, the IG reported on NSF's progress in improving its financial management practices for large facility projects, and the development of the implementing Guidelines and Procedures. Dr. Boesz presented the results of an audit of the MRE appropriation account previously requested by the Subcommittee (see page 18).

Dr. Boesz noted that NSF funds two distinctly different types of large facilities projects from the same account: those that invest in state-of-the-art, scientific tools for research and development of new knowledge and ideas; and those that support mission-critical property, plant, and equipment that provide the facilities and logistical means for a broad range of science to take place, primarily in NSF's Polar Programs. Both types of projects require effective project management to ensure that they are completed on schedule, obtained at a fair price, and perform as expected. Federal accounting standards also require both types of projects to account for the total costs of each project.

However, funding both types of projects from a single appropriation account creates a potential situation in which the replacement, renovation, and upkeep of assets critical to the safety and health of researchers and support personnel must compete for limited funding with new and improved scientific tools. The Inspector General suggested that NSF prioritize the mission-critical property plant and equipment

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projects separately from the development and construction of research tools, and consider establishing different sources of funding for each, to avoid possible negative impact on the broad range of programs these assets support.

Legislative 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 Office of Inspector General (OIG) and NSF programs and operations. We perform these tasks for the purpose of providing leadership in activities that are designed to promote 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 may have a broad effect on the Inspector General community.

During this reporting period, we reviewed 21 bills that affected either NSF, OIG, or both. The following bill 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 and have discussed in previous Semiannual Reports is amending PFCRA to include NSF and the 26 other "Designated Federal Entity" (DFE) agencies that are currently excluded from participation under PFCRA's enforcement provisions. PFCRA sets forth administrative procedures that enable defrauded agencies to proceed administratively to recover double damages and penalties when the amount of loss is less than $150,000. The DFEs are generally smaller agencies that intrinsically are more likely to have cases involving smaller dollar amounts.

The OIG's concern 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 PFCRA. The enforcement provisions of PFCRA will enhance the recovery efforts of NSF and other DFE agencies.

The joint legislative committee of the President's Council on Integrity and Efficiency (PCIE) and the Executive Council on Integrity and Efficiency (ECIE) is considering a recommendation that PFCRA be amended, as described above.

Information Systems

New Knowledge Management System for OIG

Over the past year, we have been working with an information technology contractor to develop a Knowledge Management System for the office. Once it is completed, we expect our workforce to perform more efficiently with an IT system

that will (1) allow faster and easier access to timely information, (2) reduce duplication of effort in such routine tasks as entering data and formatting reports, (3) support staff collaboration and team efforts through more effective information sharing, and (4) improve management and tracking capabilities for audits, investigations, evaluations, and internal office administration.

OIG staff Jill Schamberger, Jennifer Geer, Catherine Ball, and Peggy Fischer discuss new IT system at office retreat.

The system requirements and preliminary design have been completed, and we are currently testing a baseline system that integrates and updates dozens of spreadsheets, databases, and other "stovepipe" applications that have been in use. The new system has already made it much easier for staff to record and retrieve information related to audits and investigations, e.g., objectives, staffing, milestones, results, and costs. It was also used to generate the statistical tables for this report.

After final testing of the baseline system, we will identify system enhancements to support additional administrative functions, such as customizable reports and time management services.

Outreach / Prevention Activities

Interaction with the Awardee Community

In June the IG participated in a conference of California State University (CSU) sponsored research administrators hosted by CSU, Long Beach. The IG presented an overview of Federal compliance issues that affect NSF awardees. Continuing discussions focused on cost-sharing compliance and OMB Circular A-133 audits. Afterwards, an NSF representative presented the agency's perspective on these and other issues. The outreach was particularly effective because the IG and NSF were there together to discuss Federal and NSF-specific compliance issues affecting CSU institutions.

Central to our outreach goals is maintaining an ongoing discussion with the awardee community regarding our policies and procedures. We attend outreach and other meetings to provide information and to learn about the communities served by NSF. We focused on two issues this semiannual period: conflicts of interests (COI) and research misconduct.

Conflicts of Interests

In our March 2002 Semiannual Report (p. 14), we discussed an internal analysis of COI cases conducted by this office. The issue has gained heightened interest as more and more universities are supporting or engaging in business activities involving new inventions, which increases the potential for actual and apparent conflicts of interests.

In April 2002 we gave a presentation at a "Conflict of Interest and Research Integrity Conference" hosted by Washington University, the HHS Office of Research Integrity, St. Louis University, and the University of Missouri, Columbia. The purpose of the conference was to discuss the impact of COI and research integrity concerns on the public's faith in research results. It was clear from the remarks of both the presenters and the audience that those who address COI issues must pay particular attention to equity interest and technology transfer.

Our office contributed an article on COI that appears in the Fall issue of the Journal of the Society of Research Administrators International (SRA). The article discusses NSF's requirements and expectations regarding COI policies and identifies factors that institutions need to consider in developing a COI policy.

We are preparing to lead a workshop on COI for the annual SRA meeting in October 2002. The workshop will focus on issues related to technology transfer, reviewer conflicts, institutional COI policies, and university researchers involved in outside endeavors. The workshop is designed to generate proactive strategies for dealing with COI issues and use case studies to discuss effective responses to common COI problems.

To ensure that the workshop contained pertinent and useful information, we met with technology transfer experts from public and private universities to elicit their perspectives. We learned that increasing numbers of university faculty are sitting on boards, acting as consultants, and playing other roles in companies that may create conflicts of interest and commitment. Those who receive compensation for their efforts must be careful to avoid financial COI. It can become difficult to resolve COI issues when faculty members have financial stakes in potentially profitable technologies or the university has equity in the start-up company exploiting the technology. We learned that universities engage in technology transfer activities for two primary reasons: to enhance the reputation, recruitment, and retention of faculty, or to obtain revenue for the university.

Research Misconduct

NSF's updated research misconduct regulation became effective on April 17, 2002. We were able to discuss the changes with research scientists and administrators at a meeting of the Council for Undergraduate Education, an NSF Regional Grants Seminar, and a university briefing. We also compared various institutional policies

and procedures with NSF's research misconduct regulation, and learned of training plans and needs for institutions trying to administer the new policy.

At a meeting of the Council for Science Editors, we spoke with editors of scientific publications that contain articles written by NSF grantees based on their NSF-funded research. We discussed ways in which these editors can address allegations of misconduct and encouraged them to forward such allegations to us.

Participants at some of our outreach events have told us that instances of wrongdoing associated with NSF grants are sometimes resolved at the institution and never reported to OIG. Although NSF's research misconduct regulation only requires notice to NSF if an inquiry supports a formal investigation, we encourage recipients of NSF awards to report all allegations of wrongdoing with regard to NSF-sponsored research to OIG. Increased awareness of OIG's role is a key part of our ongoing efforts

Finally, we developed a brochure outlining the new regulation and explaining OIG's process for handling research misconduct allegations. The brochure is available at http://oig.nsf.gov/brochure.pdf.

Interaction within NSF

OIG staff continues to coordinate activities with NSF:

- OIG staff chaired the Audit Coordinating Committee, which regularly brings together OIG, contractor, and NSF staff to plan and review the progress of the annual financial statement audit and other auditing matters.
- OIG staff gave presentations at each of the Program Management Seminars conducted by NSF for new program officers and represented OIG on various NSF committees and working groups. The Deputy IG, for example, participated on an agency working group reviewing NSF recruiting and hiring procedures.

Dr. Boesz joins CFO TOM Cooley and Dr. Bordogna for the presentation of the *Certificate of Excellence in Accountability Reporting* to NSF.

- We responded to NSF requests for comment on its revisions of its Grant Policy Manual and Grant Proposal Guide. In addition, we provided comments on NSF's new Risk Assessment and Award Monitoring Guide.
- One of our Senior Audit Managers attended a Division of Acquisition and Cost Support (DACS) retreat and served on a panel discussing how DACS customers assessed its performance. This type of outreach activity helps the OIG communicate issues and fosters collegial relationships within the agency.

Interaction with the IG Community

We are implementing three practices designed to improve the professionalism of NSF's OIG: engaging in a peer review process to ensure that our office's policies and organization optimize the resources at our disposal; developing and instituting core competencies to increase the productivity and expertise of the investigative staff; and providing training to and working with other IG offices.

Peer Review. In our March 2002 Semiannual Report (page 51), we discussed our preparations for peer review of our Investigations unit. The PCIE/ECIE Investigations Committee promulgated a draft *Guide for Conducting Qualitative Assessment Reviews for Investigative Operations of Inspectors General (Guide)*. We have used the Guide to modify and improve our existing procedures and develop a new Investigations Manual that incorporates the Guide's principles. We anticipate that our Investigations office will undergo a peer review during the upcoming semiannual period.

Core Competencies. We have identified five core competency areas, including investigative skills, interviewing techniques, and general knowledge about grant fraud, auditing, and certain provisions of the law. We have ensured that all of our investigators and attorneys have basic professionally recognized training in each area. For example, in this period, investigative staff attended the Federal Law Enforcement Training Center (FLETC) IG Academy Basic Non-Criminal Investigator Training course, FLETC-sponsored Hot Line training, and Fraud Examiner training. Other training included courses on the Freedom of Information Act, the Privacy Act, and legal ethics.

Coordination. We were invited to participate in IG Academy course curriculum reviews for the Academy's new Editing Investigative Products Training Program (EIPTP) and Continuing Legal Education Training Program. We assisted in the development of EIPTP, a three-day program designed for managers and independent editors who review and edit investigative written products. Two of our Investigations staff served as instructors for the inaugural class.

We provided the Environmental Protection Agency (EPA) IG information on NSF environmental programs for its Compendium of Federal Environmental Programs, which included NSF data. We also continued our participation in the Association of Directors of Investigation conference, interagency SmartPay working group meetings, and the Grant Fraud Working Group.

Dr. Boesz Chairs Misconduct in Research Working Group. We continue to assist the IG community in assessing its role in the implementation of the Office of Science and Technology Policy (OSTP) Policy on Research Misconduct. NSF's IG chairs the PCIE/ECIE Misconduct in Research Working Group (MIRWG), which serves as a focal point for discussions about OIG roles in research misconduct investigations. The MIRWG links OIG and agency representatives so that issues of

mutual concern can be properly vetted. The MIRWG has developed a supplement to the PCIE/ECIE Quality Standards of Investigations, which addresses unique issues arising in research misconduct investigations. We have also recently developed a checklist for OIG oversight of agency research misconduct investigations and a position paper on the link between fraud and research misconduct.

Interaction with Other Federal Agencies

In May, we responded to an OMB request for comments on proposed revisions to OMB Circular A-133, Audits of States, Local Governments, and Non-Profit Organizations. We agreed in principle with OMB raising the audit threshold from $300,000 to $500,000 a year. We also agreed with OMB's plan to raise the dollar threshold for designating cognizant agencies from $25 to $50 million because it would not adversely affect our cognizance over grantees that NSF primarily funds.

One of our Audit Managers served as the Chairman of the Financial Statement Audit Network, a subcommittee of the Federal Audit Executive Council. The mission of the Network is to promote the sharing of best practices; provide a forum for discussing current developments; serve as a conduit for providing information to members; and facilitate commenting on pending guidance, regulations and legislation. In addition, we served on the GAO/PCIE FAM committee responsible for updating the Financial Audit Manual. This manual will be used by Offices of Inspector General and the General Accounting Office for conducting financial statement audits and monitoring audits conducted by Independent Public Accountants.

David Radzanowski of OMB speaks at OIG retreat last June.

Audits & Reviews

We are responsible for auditing grants, contracts, and co-operative agreements funded by NSF, and for reviewing agency operations to ensure that they are conducted effectively and efficiently. Many factors are used to determine what to audit or review, including requests by Congress, National Science Board members, key NSF managers, and other government officials. In selecting our audits, we also consider NSF strategic goals and management challenges, award recipients' prior experience in managing federal awards, and priorities set by Federal financial regulatory bodies and the OIG. We focus our audits and reviews on areas that present the most management and financial risk to NSF in accomplishing its scientific research and education goals effectively and efficiently. We attempt to identify these areas of risk proactively to prevent serious occurrences that could impede NSF's mission.

Our financial and compliance audits determine (1) whether costs claimed by award recipients are allowable, reasonable, and properly allocated to NSF's awards, and (2) if awardees had adequate procedures and controls to ensure compliance with Federal laws and regulations, NSF requirements, and the terms and conditions of the award. Performance audits and reviews evaluate the effectiveness and the efficiency of the administrative and programmatic aspects of NSF and awardee operations. In addition, by law we conduct the annual audit of NSF's fiscal year financial statements, including evaluations of internal controls and data processing systems.

HIGHLIGHTS

Significant Reports

Financial Statement Audit and Review of Information Systems

Improving financial management and information security have been important priorities of the Federal Government for many years. Current efforts are driven by *The President's Management Agenda*, which identifies improved financial management as one of the five government-wide initiatives. The President's goal is to ensure that Federal financial management systems produce accurate and timely information to support operating, budget, performance, and policy decisions.

Since 1990, Congress has enacted several laws designed to improve Federal financial management and information systems security. The Chief Financial Officer's Act of 1990, as amended, requires that Federal agencies prepare financial statements and the agency's OIG, or an independent public accounting firm selected by the OIG, audit these statements annually. The Government Information Security Reform Act of 2000 (GISRA) requires agencies to perform annual reviews and report to the Office of Management and Budget on their information systems security programs. In addition, Inspectors General are to provide independent evaluations of the information security programs and practices of their agencies. We contracted with the auditing firm KPMG, LLP to perform these reviews.

In the March 2002 Semiannual Report (page 20) we reported on the results of NSF's FY 2001 financial statement audit, which included the results of its information system security review. We also report on the results of our FY 2002 assessment of NSF's information systems security program required by GISRA and indicated that in this Semiannual Report we would discuss our *FY 2001 Management Letter Report*.

Joel Grover, Catherine Walters, John McCreary and Jannifer Jenkins (not pictured) received the PCIE/ECIE Award for Excellence in Audit.

The *FY 2001 Management Letter Report* contained detailed discussions on the internal control findings identified during the FY 2001 financial statement audit, including the reportable condition regarding post-award grant and asset management that was identified in the *FY 2001 Independent Auditor's Report.* The *FY 2001 Management Letter Report* also described the need for NSF to improve its cost accounting and performance measurement systems in order to better assess the effectiveness and efficiency of NSF's operating performance.

Specifically, the audit found that cost information for NSF activities are not reported on a regular basis thereby impairing management's ability to make informed operational decisions, precluding meaningful and timely reporting on performance measures, and increasing the risk of project cost overruns and program inefficiencies remaining undetected. NSF management did not concur with the findings related to cost accounting and performance measurement system deficiencies but agreed that cost accounting was a management challenge. Consequently, NSF retained a management-consulting firm

to conduct an integrated performance, cost and budgetary strategy assessment for NSF, and to provide different scenarios for NSF to consider in addressing challenges identified in the financial management area.

The consultant issued a report in August 2002 identifying options for establishing additional cost accounting and performance measurement capabilities to satisfy the fundamental and long-term needs of NSF. As a result, NSF developed a draft action plan to achieve better alignment with resources and goals of the agency. This plan is being vetted through OMB for comment and consultation. Once a final plan of action is agreed to with OMB, NSF will initiate implementation of the plan. We are continuing to work with NSF to resolve these issues.

The *FY 2001 Federal Information System Control Audit Manual (FISCAM) Management Letter Report* also contained internal control findings and recommendations related to NSF's information systems environment. The management letter report discussed the reportable condition included in our *FY 2001 Independent Auditors Report* identifying weaknesses in NSF's electronic data information systems. It also reported on six other findings, including the need for NSF to ensure that a large contractor fully develops and implements an information security program in accordance with Office of Management and Budget and National Institute of Standards and Technology guidance. This weakness had been reported in the previous year but corrective measures had not been fully implemented. Management concurred with the recommendations in the report and has made progress in addressing the specific recommendations.

During this semiannual period we also completed our assessment of NSF's information security program required by GISRA and performed in conjunction with our ongoing FY 2002 financial statement audit work. The report, *FY 2002 Government Information Security Reform Act Independent Evaluation and FISCAM Management Letter,* identified ten findings, three of which we considered to be significant deficiencies[1]. The significant deficiencies involved a need for NSF to: formalize the authorities, responsibilities and agency positions charged with carrying out the agency's information security program; improve the design, administration and monitoring of access controls over critical internal NSF applications; and ensure that all of NSF's major systems are certified and accredited. NSF management concurred with the recommendations in this report but disagreed with the classification of the three findings as significant deficiencies.

The results of our FY 2002 financial statement audit will be reported in our next Semiannual Report.

[1] A significant deficiency is a weakness in a policy, procedure, or practice that could materially impact the effectiveness of the entity-wide security program.

Financial Management of Major Research Equipment and Facilities Projects

Providing effective management and oversight of large facilities and research equipment projects continues to be a major management challenge for NSF, and a continuing concern of Congress, as well as this office. Through FY 2002, NSF has provided well over $700 million from the appropriation account[2], to fund the construction of major research equipment and facilities that provide unique capabilities at the cutting edge of science and engineering. In earlier reporting periods, our audits identified needed improvements in NSF's policies and procedures for managing and overseeing large facility projects. In response, NSF developed the Large Facility Project Management and Oversight Plan, and is in the process of finalizing its Large Facility Project Guidelines and Procedures. Together, these policies and procedures are intended to provide guidance for managing all aspects of large facility projects, emphasizing fund control and effective project management.

New Audit Report Issued. At the request of the former Chairman of the Subcommittee on VA, HUD and Independent Agencies of the Senate Appropriations Committee, we performed an audit of the funding for major research equipment and facilities. The purpose of our audit was to determine if NSF solely used its Major Research Equipment appropriation to fund the construction and acquisition costs for major research equipment and facilities, and to determine if NSF had established adequate management controls to ensure that these expenditures were derived solely from MRE appropriations.

We found that, although NSF had made a concerted effort to improve its management and oversight of projects receiving funding from the MRE appropriation account, more needed to be done to improve its financial management of these projects. NSF's policies and practices did not yet provide adequate guidance for program managers to oversee and manage the financial aspects of major research equipment and facilities. These policies had allowed NSF to use multiple appropriation accounts to fund the acquisition and construction costs of major research equipment and facilities, and led to inconsistencies in the types of costs funded through the MRE account. Additionally, NSF's practice was to track only those costs funded from the MRE account and not the full cost of the major research equipment and facilities. As a result, NSF could not ensure that it stayed within its authorized funding limits or that it provided accurate and complete information on the total costs of major research equipment and facilities to decision-makers for use in evaluating performance.

[2] Formerly the Major Research and Equipment account. Congress renamed the account the Major Research Equipment and Facilities Construction (MREFC) in fiscal year 2002 to better reflect the account's intent.

In the report, we recommend that NSF improve its financial management and accounting policies and procedures to ensure that it manages and oversees the full cost of major research equipment and facilities. These improvements must ensure that NSF tracks the total costs of the major research equipment and facilities in accordance with Federal accounting and management guidance, develops the appropriate financial management practices to oversee its major research equipment and facilities, specifies how cost overruns are to be handled, and uses appropriation accounts in accordance with their stated purpose. In addition, NSF needs to provide training on the updated policies and procedures to all NSF personnel involved with the funding and accounting for major research equipment and facilities.

NSF did not concur with the report findings. NSF believes its use of MREFC funds has been consistent with the purposes for which the appropriations were made. NSF also believes that while its financial accounting system does not formally track all of the costs of major research facilities, it is nonetheless able to accumulate and report those costs through other records and manual processes such that accurate and complete information is available to decision makers, when necessary. While disagreeing with the findings, NSF has agreed to address our recommendations and indicated that its corrective actions were well under way based on an earlier audit of a major facility project.

Status of NSF's Implementation of Audit Recommendations Related To Large Facilities Projects. In the March 2001 Semiannual Report, we reported on our audit of the financial management of a large facility project. In that report, we recommended several actions to help NSF improve its large facility project administration. During this reporting period, NSF provided the National Science Board with an updated assessment of the project's cash flow plan, and amended its Grant Policy Manual to clarify the funding source for construction expenses for these projects. At the end of this reporting period, actions to address three of the seven recommendations remain in process, pending the issuance of NSF's Guidelines and Procedures to improve the financial management over the large facilities projects.

Cost Sharing

As we reported in our March 2002 Semiannual Report (pp. 23-30), to assess the extent of cost-sharing problems in NSF awards we have undertaken two audit initiatives, one at five campuses of a western state university system and the other at eight geographically diverse institutions throughout the United States. During this period, we are reporting on the last of these 13 audits. We also are providing updates on NSF's actions to resolve three of our prior cost-sharing audit reports.

A Northeastern University Lacks Support for $3.8 Million of Required Cost Sharing

We completed a cost-sharing audit at a northeastern university that received five NSF awards with $3.8 million of required cost sharing during the audit period 1995 through 2001. During this same time period NSF funded more than 1,000 awards at this university, for an investment of $612.8 million. On 174 of these awards, the university promised approximately $31 million of cost sharing. Thus the $3.8 million of cost sharing required on the five awards included in our audit represented approximately 12 percent of the total cost sharing the university promised on the NSF awards it received during this time period.

Our review found that the university did not have an adequate internal control structure for managing, accounting for, and reporting on its cost-sharing obligations. Individual university departments did not track cost sharing in separate accounts and could not support the amount of cost sharing claimed for a specific NSF award. We found that the departments tracked cost sharing in multiple accounts, some of which commingled both cost-sharing expenses and other expenses unrelated to NSF projects. In addition, the university did not monitor subrecipients' cost sharing, resulting in inadequate documentation to support the existence of, or the valuation for, claimed cost sharing.

As a result of these problems, we were unable to conclude whether or not the $3.8 million of claimed cost sharing was allowable, reasonable, and allocable under Federal requirements. More generally, the inadequacies in the system for accounting for cost sharing increase the risk that the university may not be properly accounting for more than the approximately $31 million of cost sharing promised on other NSF awards funded concurrently with the five audited awards. We do not believe the university placed sufficient priority on ensuring compliance with cost-sharing guidelines. In addition, contrary to NSF requirements, the university did not submit annual cost-sharing reports. As a result, NSF lacked adequate information to effectively administer the five awards.

We recommended that NSF perform a follow-up on-site review to ensure that the university: 1) take action to separately account for its cost-sharing obligations on each Federal award; 2) monitor its departmental and subrecipient cost sharing, including periodic reviews and site visits and; 3) provide certified cost-sharing reports to NSF. The university acknowledged that its cost-sharing accounting system had flaws, but thought the report overstated the seriousness of the findings. Nevertheless, it agreed to track the cost-sharing in separate accounts to support cost sharing on individual NSF awards, and to improve its monitoring by requiring subrecipients to certify on each invoice that claimed cost-sharing expenses were actual expenses incurred for NSF awards.

Southern University Unable to Document $414,477 of Subrecipient Cost Sharing

We also conducted a cost-sharing audit at a Southern university that received two NSF awards requiring cost sharing of $2.9 million, for which the university claimed $3.2 million. Of this amount we found $466,645 of unallowable and unsupported cost sharing for salaries, fringe benefits, indirect costs, and subaward expenses resulting from non-compliance with Federal requirements. Specifically, the university claimed $414,477 of subaward costs that were not supported by documentation. The university did not have an adequate system for monitoring subrecipients' cost sharing and had not included a clause in its subaward contract specifying subrecipient responsibilities for contributing, accounting for, documenting, and reporting required cost sharing to the university.

The university also claimed $26,458 for staff salaries that were not supported by time cards, and $10,845 and $14,865 for unallowable fringe benefit and indirect costs. Additionally, the university did not accumulate cost sharing in separate accounts, relied on financial information that was not derived from its official accounting records, and did not have a system to provide for safe storage of all time-keeping records for the required three years. In seven cases, either the university did not submit required annual cost sharing certifications to NSF or an independent Authorized Organizational Representative did not sign the certifications. Because the university provided cost sharing greater than the NSF award required, it met its cost sharing on one of the awards. However, it had a shortfall of $239,805 on the second award (although the university still had time to address the shortfall prior to award expiration). As a result of subrecipient monitoring inadequacies, unsupported costs, and lack of cost-sharing certifications, NSF program officers had less assurance that program objectives funded by cost-sharing requirements were being met.

We recommended that NSF ensure that the university develops and implements 1) written policies and procedures for monitoring subrecipient cost sharing and providing the annual cost-sharing reports certified by an Authorized Organizational Representative, and 2) a system that tracks cost sharing in separate accounts and provides for the retention of time-keeping record for three years from the date of the submission of the final project report. The University agreed to implement two of our recommendations but did not agree that its monitoring of subrecipient cost sharing was inadequate. We have forwarded the audit report to NSF's Division of Acquisition and Cost Support for audit resolution.

Three Cost Sharing Audits Resolved

During this reporting period, NSF resolved three audits with cost-sharing findings that were previously reported in our March 2002 Semiannual Report (pp. 23-28). In two of the audits, we found that the institutions depended on a flawed accounting system for tracking cost sharing:

- At a western state university campus NSF funded 30 awards with $2.3 million required cost sharing. We found that the university did not have a system to track, document, certify, and report the amount of cost sharing it had contributed to NSF awards. For example, the university commingled cost sharing expenditures with other costs in department cost accounts. Also, to support $522,025 of claimed cost sharing for faculty salaries, the university provided documentation that was certified up to six years after-the-fact. We recommended NSF verify that the university had implemented adequate award management controls and accounting systems to track, document, certify, and report its cost-sharing obligations in accordance with NSF and Federal award requirements. NSF found that the university's revised cost-sharing policies and procedures would, if properly implemented, address the deficiencies. In one year NSF will review the revised cost-sharing system to ensure compliance with Federal administrative requirements.
- A northeastern university also commingled cost-shared expenses with other costs, and as a result overcharged NSF $48,408. During audit resolution, NSF determined that the university had adjusted its unbilled award costs to correct for the overcharge but that the university's accounting system still needed improvements. Thus, NSF advised the Office of Naval Research (ONR), the university's cognizant agency, to follow up on the university's attempts to fully automate its accounting system. Finally, we found that the university's time and effort reporting system did not comply with Federal requirements for after-the-fact certification. During audit resolution ONR agreed that during its next review of the university, it would examine the compliance of university's time and effort reporting system with Federal requirements for after-the-fact certification.
- A college in the central U.S. received an $186,810 award from NSF requiring cost sharing of $515,000. The college claimed the total amount of required cost-sharing, but we found that $446,446 was unallowable because the funds were spent for fiber optics and library initiatives unrelated to the project. NSF eliminated this cost-sharing requirement because it concluded that the NSF program officer for this award had erroneously accepted both unrelated initiatives as part of promised cost sharing.

Urban School District Reviews

In the March 2002 Semiannual Report (page 36), we reported that our work in progress included audits of urban school districts awardees. In fiscal year (FY) 1999, NSF established its Urban Systemic Program (USP) in science, mathematics, and technology education through the merger of two education programs: the Urban Systemic Initiatives (USI) Program and the Comprehensive Partnerships for Science and Mathematics Achievement. Through this combined effort, NSF seeks to stimulate interest, increase participation, improve achievement, and accelerate career advancement and success of all students of the participating urban school districts.

In August 2000, NSF had 24 active USP/USI awards ranging in value from $1.2 million to $15.1 million. The estimated total value of the 24 active awards was approximately $248.9 million.

Because of NSF's significant investment and the fact that prior audits of these types of awardees identified significant questioned costs and compliance and internal control problems, we initiated an audit of eight of 24 USP awards. Together these eight awards represent $120.5 million or 48 percent of the $248.9 million active USP/USI awards as of August 2000. Currently, we have completed four of the audits.

We found that two of the four awardees had adequate systems of internal control for administering their NSF awards and appropriately claimed costs allowable under NSF and Federal requirements. However, the other two school districts had deficiencies in their internal control systems for cost sharing, payroll, and participant support costs.

Ms. Christine Lewis, audit program specialist, retired in November after 36 years of service to the Federal Government, 30 of which were spent with the NSF Office of Audits. Ms. Lewis' office management skills, initiative, and diligence have contributed greatly to the efficient operation of the Audit Office. She shared her institutional memory and experience with all staff who needed her help, and will be missed for her warm personality and friendship. We wish her a long, and happy retirement.

Cost Sharing. Federal guidelines require that cost sharing is (1) verifiable from the recipients records, (2) not funded by other Federal grants, and (3) necessary for the accomplishment of the program objectives. However, the cost sharing amounts claimed by two school districts were not verifiable from their records because some of the amounts were based on budgeted rather than actual costs and the allocation methods used were not documented. Also, the claimed cost sharing inappropriately included costs borne by other Federal grants, as well as expenses related to the school districts' ongoing programs rather than the specific objectives of the NSF award. As a result, for the first school district $9.5 million, or 100 percent of its cost sharing was not supported and was at risk of not being met before the expiration of the grant. In the case of the second school district, twenty-four percent of the total claimed cost sharing or $1.7 million, was not allowable. However, the amount was not questioned because the school district had other allowable cost sharing expenditures sufficient to meet the award requirement. This condition occurred because the school systems did not have written policies and procedures for accounting and reporting of cost-sharing for the NSF awards, and the responsible awardee staff did not understand Federal requirements for developing and maintaining appropriate records and documents to support the claimed cost sharing. The awardees agreed with our findings and recommendations and issued written procedures for the administration of cost sharing.

Payroll Records. Federal requirements state that salary and wages will be supported by time and effort reports. While one school district required that its Project Director review and certify time records, we found that the Project Director did not perform this review. As a result, a large percentage of the time records supporting the $2.8 million in salaries and wages claimed on the NSF award were not available or were incomplete. Only by conducting extensive interviews with the school district's staff were we able to confirm the reasonableness of the labor charges. We recommended that the awardee adhere to its existing policy that requires the completion and proper review of employee time and effort documentation as a basis to certify the payroll charges. The awardee agreed to adhere to its policy.

Participant Support. NSF requires that funds provided for participant support may not be used by grantees for certain expenses not specified by NSF at the onset of the award without specific prior approval of the cognizant NSF program officer. However, participant support funds totaling $616,048 were used by one school district to purchase technical software packages, although the NSF program officer disapproved the awardee's request. We recommended that the awardee adjust its accounting records to reimburse the award for the unallowed software costs of $616,048 and develop and implement procedures that will ensure that only allowed and authorized costs are charged to NSF awards. The awardee agreed with our recommendations and indicated that it has taken corrective action.

Community Colleges Audits

In the March 2002 Semiannual Report (page 37), we reported that our work in progress included audits of community college awardees. Community colleges historically have received approximately $30 to $40 million in annual NSF funding, and the agency plans to increase funding to these institutions in the future.

As was the case with urban school districts, prior audits of community colleges have identified questioned costs and grant accounting control weaknesses. To assess the current extent of these problems, we initiated audits at 13 community colleges in FY 2002 that had received 75 NSF awards totaling $44.8 million. The objectives of the audits were to determine whether costs charged to the NSF awards by the community colleges were allowable, allocable, and reasonable, and if the community colleges had adequate systems of internal controls in place to properly administer, account for, and monitor NSF awards in compliance with NSF award terms and conditions and other Federal requirements.

We have completed four of the 13 community college audits, and identified significant weaknesses in some of the colleges' systems for accounting for and administering a total of $9.8 million in NSF grants. As indicated in the following table, the colleges had particular problems in subaward monitoring, labor effort reporting, procuring of consulting services, and accounting for indirect costs. Together these cost categories represented $6.1 million of the total $9.2 million of costs claimed

by these four colleges. The reason for these problems was that the awardees were not aware of the award and Federal requirements. If the community colleges fail to address these instances of noncompliance and internal control weaknesses, similar problems are likely to recur on other existing or future NSF awards to these institutions.

Subaward Monitoring. Federal guidelines state that awardees are responsible for managing and monitoring each project, program, subcontract, function or activity supported by the award. We found that two of the community colleges did not require subrecipients to submit documentation supporting their claims for reimbursement. Also, one of these awardees did not review the audited financial statements of its subrecipients to ensure no accounting or other grants management problems were reported. These two awardees claimed $3.3 million in subcontract costs, or 43% of their total claimed costs. Failure to obtain supporting documentation and review audit reports of subcontractors reduces the college's ability to manage expenditures and activities by subrecipients, which are supported with NSF funds. We recommended that the colleges establish adequate subrecipient monitoring procedures. In response, both colleges agreed to evaluate their current procedures.

Labor Effort Reports. Federal guidelines stipulate that salary and wages will be supported by time and effort reports. Two community colleges did not require that

Common Community College Award Problems

Awardee	Claimed Costs $	Questioned Costs $	Inadequate Subaward Monitoring	Lack of Labor Effort Reports	Consultant Verification of Hourly Pay and/or Selection Problems	
Western Community College	4,803,713	24,578	X	X	X	X
West Coast Community College	2,553,330	51,842	X	X	X	
North Central Community College	1,000,000	39,296				X
Southeastern Community College	825,720	0				N/A
Total	9,182,763	115,716				

all salary and wage costs be supported with after-the fact labor activity reports, which indicate the level of effort expended on the award. Therefore, the colleges were not able to provide assurance that the salary and wages and the related fringe benefits charged to NSF were allowable. One awardee has amended its labor effort reporting procedures, and the other awardee agreed to implement the procedures necessary to meet the requirements.

Consultant. Federal guidelines stipulate that awardees should document its procurement methodology and the basis for contractor selection, and perform a cost/price analysis on the proposed contract amount. Two community colleges did not document the selection process they used in awarding consultant agreements. One of the colleges used several consultants that were specifically named in the award proposal, but was not aware of the requirement to document the selection process. Also, one of the colleges did not have policies in place to perform a cost/price analysis of the consultant services. Without documenting the selection process or performing a cost/price analysis, it is difficult for the college to establish that a fair and unbiased process took place or that it obtained the best price for services obtained. Both colleges agreed to evaluate their procedures.

Indirect Cost. Federal guidelines stipulate that awardees should calculate indirect costs by applying the Federal negotiated indirect cost rate to the direct cost base. One college claimed $5,920 of indirect costs on unallowable direct costs. Another college claimed $7,491 more indirect costs than were allowable under the rate and the direct cost base provided for in the grant agreement. NSF management resolved this finding during this reporting period.

Other Reports

Controls Over Credit Card Programs

During this semiannual period, we completed two audits of NSF credit card programs: purchase cards and travel cards. While agencies can receive rebates based on the volume of charges on these cards, the cards also pose financial risks to both the agency and the individual employee. Our audits examined the controls NSF has in place over its purchase and travel card programs. We found that, while NSF is taking action to improve its management of both of these credit card programs, supervision and oversight controls need to be strengthened.

In our audit of NSF's purchase card program, we found that NSF has taken several actions to improve the purchase card program in response to recommendations in a previous OIG report.[3] Purchase cards are issued to certain employees for the

[3]*Internal Controls Over Purchase Card Use in BIO Need Improvement,* OIG Report Number 00-2008, September 29, 2000.

purpose of paying for purchases for the official business use of the organization. Because the financial responsibility for paying the credit card balance rests with the agency, it is important that these purchases be independently reviewed and approved as authorized for payment. However, we were unable to determine in a number of cases whether the officials responsible for approving the credit card purchases were performing the required independent review. Without this key program control, potentially abusive transactions can occur and go undetected. Furthermore, we found instances of irregular transactions, as well as lax security over custody of the credit cards. We recommended that NSF further strengthen its internal controls over the purchase cards to include providing specific guidance and training for personnel responsible for reviewing and authorizing purchases for payment, and reemphasizing to cardholders their responsibility to protect and secure the purchase cards.

In our audit of NSF's travel credit card program, we found that while NSF is effectively monitoring and managing delinquent travel card accounts, its policies and practices do not yet address monitoring the unauthorized use of travel cards. Travel cards are issued to employees to pay for official government travel expenses such as hotels, transportation costs, and meals, during periods of authorized travel, and financial responsibility for the outstanding credit card balance rests with the individual employee. NSF has implemented a proactive process to monitor delinquent travel card accounts and establish a salary-offset program for those employees whose account balances are severely delinquent. Because these delinquencies can negatively affect the amount of the credit card rebate the agency receives, as well as harm the cardholder's personal credit rating, the proactive monitoring program is beneficial to both the agency and its employees.

However, we also found that NSF does not have a similar program to monitor unauthorized use of government travel cards. Our audit indicates that some employees have used their government travel cards for automated teller machine (ATM) withdrawals during periods when they were not on authorized travel. These actions not only violate Federal ethics laws and the credit card agreement, they also artificially inflate the amount of the credit card rebate the agency receives. We recommended that NSF expand its oversight of travel card activity to include detecting and addressing employee's unauthorized use of travel cards.

Workforce Planning

The Senate Subcommittee on VA, HUD, and Independent Agencies requested that the OIG analyze the adequacy of the agency's staffing and management plans in light of the efforts to expand NSF over the next five years. We found that although NSF does not currently have a comprehensive workforce plan, it is contracting for a multi-year *business analysis* of its operations that will include a human capital management plan identifying its future workforce requirements.

Our review of the statement of work for the contract indicated that it is thorough except that it provides for neither a human resource planning capability within NSF nor a process for monitoring, evaluating and revising the plan on an ongoing basis. Further, given the extensive scope, cost, and duration of the contract, estimated at approximately $15 million over three to four years, we believe that NSF needs to take a more active role in monitoring the contractor than is suggested in the statement of work. In response, NSF promised to play an active role in monitoring the contract and has since established a set of working groups with representatives from many areas of the Foundation to manage the major aspects of this contract. In addition, the Advisory Committee for Business and Operations, an external panel, is advising NSF on issues of concern. The agency also noted that the COTR for this contract spends about two thirds of his time monitoring and overseeing the activities of this contract.

Concerns Raised About NSF Acceptance of Certain Travel Reimbursements From Awardees

NSF initiated an Industry/University Cooperative Research Centers (IUCRC) program in 1973 to develop long-term partnerships among government, academia, and industry. NSF provides small awards of $50,000 to $100,000 per year for up to ten years, and Center members (including both university and business partners) provide additional support for Center research projects. Each Center has an Industrial Advisory Board (IAB) that meets semiannually to review activities and select new research projects. For many years NSF program officers have attended IAB meetings to facilitate administration of the IUCRC program, and Centers have used members' fees to reimburse NSF for the associated travel costs.

We reviewed NSF's practice of accepting travel reimbursement from IUCRC awardees for program officers' attendance at IAB meetings to determine whether NSF may properly receive such payments. We found that annual receipt of approximately $34,000 in travel reimbursement from IUCRC awardees, raised concerns about the appearance of a conflict of interest, given NSF's responsibility for monitoring award performance and making future award decisions.

NSF used this method to pay for its program officers' attendance at Centers' IAB meetings because, due to a limited travel budget and other travel priorities, the NSF program office was not able to pay the costs for its program officers to attend the IAB meetings. Therefore, without reimbursement from IUCRC awardees, travel to non-mandatory IUCRC advisory board meetings would be less likely. In addition, NSF's Office of General Counsel (OGC) had advised the agency that it could accept travel reimbursement from IUCRC awardees. OGC concluded that NSF could accept IUCRC reimbursements under NSF's statutory gift acceptance authority, although a decision by the Comptroller General suggests that such reimbursements were not "gifts" because they were not provided "without consideration".

We concluded that a preferable method of funding travel to IAB meetings was for NSF to allocate part of its $15 million travel budget for its program officers to attend the IUCRC IAB meetings. In its response, NSF disagreed that accepting travel reimbursements from IUCRC awardees is contrary to NSF or Federal policy. Nevertheless, NSF management indicated that it will no longer accept IUCRC membership fees to reimburse program officers' travel expenses to IAB meetings and will utilize alternative NSF budget resources, including administrative cost recovery funds from other agencies previously waived by NSF, to pay for these costs.

Indirect Cost Audits

About one-third of all costs charged to NSF awards are indirect costs. Unlike direct costs, indirect costs are not tied to specific projects, but are allocated to NSF by means of a negotiated indirect cost rate. When NSF provides the largest dollar value of Federal awards to an organization, it is usually designated the cognizant agency, responsible for negotiating and approving indirect cost rates for that organization on behalf of all Federal agencies. NSF currently negotiates indirect cost rate agreements with approximately 150 mostly non-profit institutions, which have received approximately $270 million annually from NSF.

Because non-profit institutions often have limited staff and/or experience in administering Federal awards, we initiated audits of the indirect cost rates of ten non-profit organizations. These organizations receive more than a total of $70 million in funds, including more than $15 million in indirect costs. During this reporting period we completed one of the ten indirect cost rate audits.

New England Scientific Society Over-Recovers $240,245 in Indirect Costs

We audited a New England scientific society's indirect cost proposals for the years ended 1998-2000. We found that the institution over-recovered indirect costs totaling $240,245, or 30 percent of the total claimed indirect costs on ten NSF awards. This occurred primarily because, contrary to Federal requirements, the society misclassified $1.4 million of direct program costs as indirect costs. The society did not understand that mission-related activities should be classified as direct costs, not indirect costs. We found that clear policies and procedures are needed to ensure that the society's future indirect cost rate proposals accurately classify its direct and indirect costs. In addition, we found a number of other significant problems with the society's indirect cost accounting process:

- The institution did not have an adequate system to track, document, and certify the labor effort of staff who allocated their time to both direct and indirect activities, resulting in $806,180 of unsupported salaries and wages in the indirect cost pools used to calculate proposed indirect cost rates.

- The society did not calculate a separate indirect cost rate for its research center in Washington, D.C., which may incur indirect costs at a different rate from the one at which the society's headquarters office in New England incurs indirect costs.
- The society submitted its indirect cost proposal to NSF only every second year, thus preventing NSF from taking timely corrective action.

Accordingly, we made several recommendations to improve the society's written policies and procedures for classifying direct and indirect costs and its processes for tracking, documenting, and certifying monthly labor distributions reports. We also recommended that NSF require the society to develop a separate indirect cost rate for its off-site Washington D.C. location, and to submit indirect cost proposals to NSF annually.

Since the society's indirect cost rate was a fixed rate, which is not subject to adjustment, NSF may not recover the overcharged costs. However, by addressing the accounting weaknesses in the society's indirect cost calculation process, NSF can better ensure the accuracy of future indirect cost charges. We estimate that based on the society's approximately $1.2 million annual expenditures of NSF funds, the implementation of our recommendations could save NSF as much as $444,103 in indirect costs over the next five years.

The institution disagreed that it had misclassified $1.4 million of direct program costs as indirect costs, that its timekeeping system was inadequate, and that it needs to modify its system for recording grant costs. We have forwarded these matters to NSF's Division of Acquisition and Cost Support for audit resolution.

A-133 Related Reviews

Non-Federal entities are responsible for arranging A-133 audits and submitting the reports through the Federal Audit Clearinghouse within nine months after the end of their fiscal year. Our office receives and performs a limited review of the A-133 reports submitted directly to us by the Federal Audit Clearinghouse and those that are continuing to be submitted directly from the auditees. During these reviews we seek to identify trends in the nature of the independent auditor's findings that suggest systemic weaknesses in the awardee's award administration and compliance program and/or policy implications for NSF program management. In this reporting period, we reviewed 84 A-133 audit reports with NSF expenditures of $958.8 million dollars for fiscal years 1997 through 2001. In total the auditors questioned $172,231 of NSF-funded costs and cost sharing claimed by award recipients. The majority of reports were for 2000 and 2001. After our review, we forwarded 69 reports with questioned costs, internal control weaknesses, and/or findings of non-compliance with Federal laws and regulations to NSF's Division of Acquisition and Cost Support for audit resolution.

Our office also continued to examine Management Letters, which report internal control weaknesses that are generally less significant than those reported in the A-133 report, but still require management's attention. Our review of 35 Management Letters this reporting period identified issues related to grantees' financial management systems, policies and procedures, as well as business continuity plans, information technology security and other IT issues. We forwarded the Management Letters to NSF's Division of Contracts, Policy and Oversight to inform them of internal control weaknesses among NSF awardees. In addition, we plan to use this information to identify systemic weaknesses for future audits and reviews.

Corrective Action Prompted by Previous Audit Findings

Eastern Not-For-Profit Improves Internal Controls and Compliance Over Administering NSF Awards

In our March 2002 Semiannual Report, we reported on an audit of an eastern not-for-profit organization whose purpose is to promote and conduct geophysical investigations of the earth's interior. We identified significant internal control and compliance problems in the organization's administration of its two $104.6 million cooperative agreements. NSF verified that corrective actions have been taken to resolve all recommendations. Specifically, the organization reported that it would retain all accounting records to support claimed costs in the future for the full time required under the NSF award agreement. Also, the organization has written policies and procedures to enhance its oversight of subrecipient monitoring, and revised its time and effort reports to comply with Federal requirements. Finally, NSF agreed to review and negotiate indirect cost rates with the organization annually to ensure that the accounting of direct and indirect costs is proper.

Mid-Atlantic Education Consultant Offsets Disallowed Costs, Improves Accounting Procedures

In our September 2001 Semiannual Report (pp. 16-18), we reported on three NSF contracts issued to a mid-Atlantic education-consulting firm. Of $6.4 million in costs and fees claimed by the contractor, we questioned $677,556 primarily for over billed indirect costs, costs related to consultants who were not formally approved by the NSF contracting office through contract modifications, and various unsupported expenses. We also reported another $191,484 in indirect costs as unresolved because the contractor had not made indirect cost data available to NSF or to us for our review at the time of audit. In addition, we reported a number of other weaknesses in the contractor's financial management processes.

Of the total $869,040 in questioned and unresolved claimed costs, NSF allowed $584,387 after review of additional documentation related to indirect, consultant, and other costs. NSF disallowed the remaining $284,653, but allowed the contractor to use unclaimed indirect costs and unpaid fees on contracts as a form of repayment. The contractor also provided all required proposals for final indirect cost rates to NSF that were not previously submitted. They also reported to NSF that as a result of the audit, systems were improved to minimize the chance of claiming unallowable costs. Invoices are now prepared directly from data in the accounting system, and improved timekeeping procedures have been established.

NSF Implements Procedures to Oversee Antarctic Contractor's Use of Funds for Major Research Equipment

NSF contracts with a few corporations to provide the logistics, operations, engineering and construction support for the United States Antarctic Program. In our March 2002 Semiannual Report (page 31), we reported that a former contractor had improperly used approximately $11.9 million in Major Research Equipment (MRE) funds (that are restricted by NSF for use on capital expenditures) to pay for operations and contract closeout costs. The contractor returned the funds and NSF subsequently reimbursed the contractor for its allowable operations and contract closeout costs. In the audit, we also questioned $23,821 in fringe benefit costs. NSF indicates that it accepted the contractor's adjustment for this amount during contract closeout.

The practice of the former contractor has been discussed with the new contractor to prevent future misuse of MRE funds. For NSF's current contract, it revised the procedures for the request, payment, and reporting of MRE funds, and ordered the current contractor to refrain from commingling funds from various appropriations or using them for purposes other than the specific purpose for which they were identified. Additionally, to ensure that the contractor does not overspend, NSF now requires the current contractor to submit requests for drawing down funds to program and administrative officials that are supported by a detailed report of the funds obligated, requested and the remaining balances by appropriation type. At NSF's request, we have included an audit of the current contract from its inception in our FY 2003 Audit Plan.

Work In Progress

Quality Control Reviews of A-133 Audits

Non-Federal entities that expend $300,000 or more in a year in Federal awards are required under the Single Audit Act of 1984, as amended, to have a single or program-specific audit conducted for that year. OMB Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*, provides implementing

guidance for conducting these audits of states, local governments, and non-profit organizations expending Federal awards. Reports prepared by independent auditors in accordance with this Circular are referred to as A-133 audits. The purpose of these audits is to provide Federal agencies with information on how well award recipients manage and spend Federal funds. NSF relies on the A-133 reports for making award decisions and for ensuring post award accountability of its funds.

In its response to the FY 2001 Independent Auditors Report, NSF wrote that as part of its "post award monitoring procedures" it reviews OMB Circular A-133 audit reports. Given that NSF makes $4.5 billion in grant awards each year, the quality of A-133 audits is a critical element to NSF in meeting its post award oversight responsibilities. However, recent Quality Control Reviews (QCR) conducted by other Federal agencies raise concerns about the quality of audits conducted pursuant to the Single Audit Act. Some have identified significant audit quality problems and have reported that these problems may be pervasive. In addition, the extent of audit coverage NSF awards receive in these audits is unclear since NSF awards are generally small relative to other Federal awards.

Consistent with the OIG's responsibilities under the Single Audit Act and to address quality concerns in a process that is material to NSF's post award administration procedures, the OIG has identified this area as a new strategic focus of its annual audit plan. In FY 2002, we conducted one QCR and will expand our QCR efforts in FY 2003 to review the audits of three additional organizations for which NSF is the largest Federal funding agency. Our goal is to complete 18 QCRs by 2007. Our office also is participating in a recently formed Federal OIG working group to explore the practicality of conducting quality control reviews of a statistically significant sample of A-133 audits. This statistical assessment is part of a longer-term Federal OIG effort to assess the extent to which agencies can rely on the A-133 audits to provide assurance that awardees are properly accounting for and managing Federal funds.

Committees of Visitors

NSF relies on committees of external experts to provide evaluations of its scientific programs. NSF's Committees of Visitors (COVs) provide program assessments that are used both in program management and in performance reporting. This audit will examine if NSF is evaluating and using these committee reports to better manage its programs and operations and whether the process for developing the reports and the use of the reports can be improved.

Award Administration Best Practices

To assist NSF in its efforts to assess scientific progress and ensure effective financial and administrative management of its awards, we are conducting a best practices review. We are studying how seven Federal, state, and private grant-making organizations administer their awards, and document their management and oversight

policies and practices. We are meeting with representatives from these organizations to better understand their policies and what they consider to be their best practices.

NSF Awards to Foreign Organizations

Over the past five years, NSF has awarded $60.5 million to 24 foreign institutions. Because foreign entities are less likely to be aware of U.S. requirements, have different accounting practices, and sometimes receive less NSF oversight, we consider these foreign entities to be at increased risk for financial problems and lack of compliance with award requirements. For example, in a recent OIG audit of an international research institute, we found for example that the organization inappropriately invested NSF funds in the stock market.

OIG auditors visit European based institute that receives NSF funding.

Our audit will evaluate the adequacy of NSF processes and controls for overseeing and monitoring foreign institutions and determine whether foreign grantees are administering their awards in accordance with award terms and conditions. Over the next year we plan to review four foreign grantees that received $46 million or 76 percent of the total NSF foreign funding.

Investigations

The Office of Investigations handles allegations of fraud, waste, abuse, and mismanagement in NSF programs and operations, as well as allegations of research misconduct associated with NSF proposals and awards. We work in partnership with NSF, other agencies, and awardee institutions to resolve issues whenever possible. As appropriate, we refer our investigations to the Department of Justice (DOJ) or other prosecutorial authorities for criminal prosecution or civil litigation, recommend administrative action in research misconduct cases to NSF's adjudicator, the Deputy Director, and in some cases recommend debarment to NSF's Director.

In this Semiannual Report, we present an overview of investigative activities, including civil and criminal investigations, significant administrative cases, and focused reviews. We also report on the significant increase in verbatim plagiarism cases, explain how allegations of plagiarism are evaluated in this office, and discuss our review of NSF's SmartPay purchase cards.

Summary Of Case Activity

Allegations of wrongdoing are classified according to the issues raised. Where there is insufficient evidence for initial classification, the matter may be handled as a preliminary file. During this semiannual period we received 149 allegations: 121 that were initially classified as preliminary files; 18 administrative cases; and 10 civil/criminal cases. We closed 110 of the preliminary files during this period: 106 after determining there was no justification for opening either an administrative or civil/criminal case; 3 became civil/criminal cases; 1 was classified as an administrative case. In addition, we received and closed 3 computer incident cases. We generated a sufficient number of preliminary files involving SmartPay charges, to check for a broad range of possible fraud schemes.

We closed 18 civil/criminal cases that involved allegations of violations of Federal laws, such as false statements, embezzlement, or theft. When we find evidence that suggests wrongdoing, we refer the case to the DOJ for prosecution. We referred two cases this period to DOJ. Investigative actions this period resulted in the return of $327,973 to the government.

HIGHLIGHTS

We closed a total of 29 administrative cases: 24 prior to an investigation, and 5 after an investigation. The majority of our closed administrative cases involved allegations of research misconduct. Under our research misconduct regulation, these cases begin with an inquiry to determine whether the allegation has sufficient substance to warrant an investigation. If it appears that research misconduct has occurred, we send a report to NSF's Deputy Director for adjudication.

Civil and Criminal Investigations

NSF Enhances Security of Social Security Numbers

In our September 1997 Semiannual Report (pp. 30-31), we discussed a case in which an NSF employee used another employee's social security number (SSN) to obtain multiple fraudulent credit card accounts. The case prompted us to recommend that NSF minimize its use of SSNs as identifiers. In response, NSF issued a policy to NSF staff on the appropriate use and confidential handling of SSNs. However, in our March 2002 Semiannual Report (pp. 40-41), we reported that the SSNs of Principal Investigators (PIs) submitted to NSF, and then provided by NSF to a contractor as part of a registration process for a NSF program, were stolen.

Dr. Boesz congratulates Joe Pinto on receiving the PCIE/ECIE Award for Excellence in Investigations.

As a result of these thefts, we sent a memorandum to the NSF Deputy Director highlighting the need to implement controls and policies to avoid theft of SSNs in the future. Since that time, a GAO Report (GAO-02-352) and pending legislation (S. 2629) have raised the profile of the issue of SSN security and identity theft. The legislation introduced in the Senate would require assessment, independent third-party review, and Inspector General reporting on privacy and data protection policies of Federal agencies.

In response, the Deputy Director described steps NSF has undertaken to enhance the internal security and confidentiality of SSNs, limit NSF employees' access to SSNs, and increase security and oversight of contractor use of SSNs. All of these actions have been implemented except for a change to the FastLane system, which will be implemented in the first quarter of 2003. These actions should result in greater awareness of the risk of theft of SSNs and other personally identifiable information, while also limiting access to this information.

SmartPay Purchase Card Review

As discussed in our March 2002 Semiannual Report (page 41), we reviewed a large number of NSF SmartPay purchase card transactions for indications of fraudulent purchases. This initiative was prompted by several recent cases of NSF purchase card and travel card fraud (Semiannual March 2000, page 22; Semiannual March 2001, page 33). During the course of our review, several reports issued by GAO (GAO: 02-676T; 02-732; 02-1041) about misuse and fraud in the SmartPay system increased Congressional interest in the issue.

Our review focused on transactions seemingly unrelated to NSF business (e.g., purchases at toy stores, clothing stores, sports stores, local shopping malls, and credit card telephone calls). Using a database of all transactions, we screened all purchases made between October 2000 and October 2001. We also reviewed selected transactions involving entertainment and travel that could potentially violate Federal regulations. Finally, we reviewed purchases of $1,500 or more from computer vendors to capture transactions involving complete computer systems.

Although we discovered no instances of fraud, we found potential internal control weaknesses involving card security, cardholder and approving-official training, proper recording of current cardholders, and split or otherwise improper purchases. In addition, although NSF has a policy requiring the attachment of identification tags to all computers, not all computers purchased with SmartPay cards were tagged. Also, the agency has no formal policy regarding the control tagging of Palm Pilots and Blackberries, which because of their size are particularly susceptible to theft. We referred these findings to our audit staff for follow-up.

Scientist Convicted for False Statements and Fraud

In our September 2001 (pp. 41-42) and March 2002 (p. 43) Semiannual Reports, we discussed a case in which a bioengineering professor at a South Carolina university submitted a fraudulent final report for an NSF Small Business Innovation Research (SBIR) Phase I grant to his wife's private company. In fact, no work was done under the award, and the final report was copied verbatim from a Master's thesis written by one of the professor's students before the grant was awarded. On the basis of the Phase I final report, NSF had funded a Phase II award for the same project.

We referred the case to the DOJ for criminal prosecution. The Phase II grant was terminated, and the professor repaid all of the grant funds ($198,975) to NSF and made an unrestricted donation to NSF of $27,500. The professor pled guilty in U.S. District Court to one count of violation of 18 U.S.C. § 1001 for submission of false information to the Federal government, and on June 20, 2002, he was sentenced to 5 years probation, a $15,000 fine, and a $100 special assessment fee. Pursuant to an administrative settlement with NSF, the professor is voluntarily excluded from participating in grants or contracts with the Federal Government until October 1, 2004.

Participants In Two Fraud Schemes Are Debarred

In our March 2002 Semiannual Report (page. 42-43), we discussed a case involving a university that reported an allegation that an employee of an NSF-funded research center had submitted fraudulent travel reimbursements. After a joint OIG-FBI investigation, the employee admitted to the offense and pled guilty to violation of 18 U.S.C. § 666 for theft/embezzlement from a program receiving Federal funds. As part of the plea agreement, the employee paid restitution in the amount of $19,871.63. On August 23, 2002, the employee was sentenced to three years probation and 150 hours of community service. NSF's Deputy Director informed the subject of a proposed debarment for a period of three years based on the criminal conviction and offenses determined to be an extremely serious breach of the public trust.

In the March Semiannual Report (pp. 42-43), we also discussed a case in which a laboratory technician/administrative assistant fraudulently endorsed and cashed 40 payroll checks payable to former temporary employees. Four Federal agencies lost a total of $50,484.61 over a 16-month period as a result of this scheme. The university calculated the charges, corrected the payroll records, and removed all associated charges from the grant accounts. According to the university's report, the subject fraudulently diverted $14,599.20 of NSF grant funds. Because the employee resigned, acknowledged responsibility for the fraud, and arranged to pay restitution, the Assistant U.S. Attorney declined to prosecute the case in lieu of administrative action.

Consistent with our recommendation, the NSF Deputy Director debarred the subject for a period of two years. The Deputy Director explained that the theft reflects adversely on the university employee's integrity, honesty and responsibility. Debarment is effective throughout the Executive Branch of the Federal government, precluding the individual from having any substantive control or critical influence regarding Federal funding.

Scientist's Use of NSF Logo Falsely Implies Affiliation with NSF

A former biology professor contacted OIG offering information about fraud in NSF's peer review system. We received many, lengthy e-mails from the professor, before he finally referred us to his website for a full explanation of the evidence of fraud. In both the e-mails to our office and on his website, the professor expanded upon his allegations of fraud and claimed that NSF had asked him to submit a proposal to receive funding to investigate his fraud allegations. We carefully reviewed all of the information provided by the professor and concluded there was no credible evidence to support any of his allegations or claims.

However, the professor's use of the NSF name and logo on his website raised concerns. The domain name included "NSF", and the NSF logo was prominently displayed at the top of every page in a manner clearly intended to convey the impression that his site was affiliated with NSF. NSF provides logo graphics on its website "for

use by members of the public who wish to provide a link to an NSF website or to acknowledge NSF assistance," but the professor's use of the logo was not consistent with this permission.

The professor also used the logos of the Department of Justice (DOJ) and Department of the Treasury. He asserted that he had entered into a contract with Treasury to represent them in carrying out his investigation at NSF's request, and in coordination with the NSF OIG as well as DOJ. We advised the professor that there are Federal statutes prohibiting the use of government seals/logos to misrepresent government affiliation. Although he was prohibited from using NSF's seal/logo to falsely present himself as affiliated with NSF, he was otherwise free to use the seal/logo if it was made clear that he was not affiliated with NSF and otherwise complied with applicable law.

When the professor made no substantive change to the misrepresentations on his website, we referred the matter to the DOJ which contacted the company that hosted the professor's website. After reviewing the misrepresentations on the website and consulting its own content policy, the company closed it down

Administrative Investigations

Plagiarism Allegations

NSF's regulation on Research Misconduct, 45 C.F.R. part 689, states that plagiarism is "the appropriation of another person's ideas, processes, results or words without giving appropriate credit." Allegations of plagiarism (both verbatim plagiarism and intellectual theft) consistently appear as the category of administrative allegations we most frequently receive. Approximately 40 percent of the allegations of research misconduct received by our office involve plagiarism¾17 percent verbatim plagiarism and 23 percent intellectual theft. Verbatim plagiarism refers to the unattributed use of another person's words, while intellectual theft relates to appropriation of another person's *ideas* and/or *processes*, without giving credit.

Significant Verbatim Plagiarism Allegations on the Rise

In verbatim plagiarism cases, subjects have inappropriately used text originally appearing in textbooks, journal articles, conference proceedings, scientific proposals, electronic media or other sources. Using text authored by others is appropriate when it is quoted, indented or otherwise highlighted and attributed to the original author. However, when a writer fails to properly attribute the original author's text, s/he violates a basic tenet of the research community by passing the words and composition off as his/her own.

We receive these allegations from numerous sources, most frequently from NSF's merit reviewers. Peers who review proposals occasionally recognize unattributed text

as belonging to another author. Sometimes they recognize the plagiarized text as their own. When the copied text originates from a previously submitted proposal, the plagiarism violation is compounded by a possible breach of the confidential merit peer review process.

The seriousness of the case depends upon the amount of text copied. Less serious cases involve the copying of small amounts of text, and after receiving an adequate explanation from the subject, generally culminate with a letter reminding them that NSF expects all aspects of a proposal to maintain the highest scholarly standards. In more serious cases, if the subject is unable to adequately explain the copied text, the allegation is referred to the subject's institution for investigation.

During this semiannual period, our office received several substantive verbatim plagiarism allegations. In addition to the cases discussed elsewhere in this report, our office referred verbatim plagiarism allegations to four institutions for investigation. We received an investigation report from one of those institutions and expect the rest to be completed, during the next semiannual period.

Once we receive an institution's report, we review it for fairness and accuracy and determine whether additional investigative work is required to ascertain whether research misconduct (RM) occurred. If the evidence shows that the subject's actions met the definition of RM, we assess whether those actions represent a significant departure from the accepted practice of the subject's research community, and whether they were committed with the requisite level of intent. If these last two criteria are met by a preponderance of the evidence, then our office recommends a finding of research misconduct to NSF and suggests appropriate action.

Evaluation of Allegations of Intellectual Theft

> *Most scientists are rigorously honest about what really matters to them, like the accurate reporting of procedures or data. In other areas, however, such as disputes over priority or credit, they tend to behave like the ordinary mortals they are. Scientists are not disinterested truth seekers; they are more like players in an intense, winner-take-all competition for scientific prestige and the resources that follow from that prestige.*
>
> *David Goodstein, "Scientific Misconduct" Academe, January-February 2002*

Understandably, scientists take umbrage when their ideas are unfairly appropriated. Ideas are the currency of progress and evolution in scientific research, and their theft can seem as serious to the author as financial theft. Intellectual theft allegations are significantly more difficult to substantiate than verbatim plagiarism, it is unusual to find that an idea has been copied exactly as it originally appeared.

Intellectual theft allegations often originate from scientists who feel they did not receive appropriate attribution for their ideas in the publications of others or

whose collaborations have dissolved. In these cases, we have found that the prevalent view in the research community is that, once scientists share their ideas publicly, others are free to use them as long as they provide proper attribution. Resolving allegations of intellectual theft from broken collaborations can be particularly problematic because the dispute among the participants involves shared nonpublic ideas. It can be extremely difficult, if not impossible to determine from whom the idea originated.

In our initial evaluation of alleged intellectual theft, we assess the originality of the allegedly copied idea in any source documents, compare the idea as presented in the source and destination documents to determine similarity, and assess the likelihood that the idea was taken from the source documents. To date we have encountered only two cases of proven intellectual theft, as discussed in our March 1992 (pp. 19-20), September 2000 (pp. 24-25), and March 2001 (pg. 26) Semiannual Reports. However, we have encountered numerous cases that range from simple misunderstandings to questionable or unprofessional conduct. We encourage scientists to craft intellectual property rights agreements at the outset of their collaborative efforts. These agreements are most effective when they allocate existing intellectual property ownership among the collaborators and create clear understandings among them about the use of joint intellectual property arising during their collaboration.

With the rise of electronic information dissemination, including the publication of papers (as both preprints and in final published form) on the web, cyber-conferences, and the ephemeral nature of many electronic information resources, the opportunities for plagiarism have increased dramatically. The expanding nature of information sharing and the modes for sharing have not dulled the offense people feel when they believe their words or ideas have been misappropriated. As the national publicity afforded to high-profile cases of scientific misconduct raises the public's awareness of the problem, it also highlights the importance of having carefully crafted collaboration agreements in place, and the value of initiating thorough and objective inquiries into allegations.

Plagiarism in Collaborative Proposals Submitted to Joint Agency Program

We investigated two plagiarism cases that we determined were substantive but could not be referred for investigation. In both cases, our initial inquiry revealed that the proposals in question were the product of U.S.-foreign collaborations submitted to a multi-agency program administered by the Department of State. For those proposals assigned to NSF for review, the U.S. collaborators resubmitted the proposals through their universities using NSF's FastLane electronic system. As a result, each proposal initially appeared to have been submitted and primarily authored by a U.S. researcher. Both U.S. researchers told us that their foreign collaborators had authored the proposals. In each case, the foreign collaborators admitted to us that they had

copied the material in question without attribution or distinction.

We met with NSF and Department of State officials to discuss preventive measures for such U.S.-foreign collaborative programs. Because the announcement for the joint agency program failed to articulate any scholarly or scientific standards for proposals, we suggested that the announcement be enhanced along the lines of NSF's Grant Proposal Guide. The interagency board issued a new announcement that incorporates specific language about plagiarism.

Actions by the Deputy Director

Scientist Fails to Observe NSF Requirements Imposed Following Misconduct Finding. In our September 1997 (pp. 36-37) and March 1999 (p. 19) Semiannual Reports, we described a case in which the Deputy Director found that the subject committed misconduct in science when he seriously misrepresented his research progress and capabilities in proposals submitted to NSF. The Deputy Director required the subject to provide detailed certifications and assurances to OIG for two years starting in April 1999, in connection with any proposal or report submitted to NSF. However in our September 2001 Semiannual Report (pp. 35-36) we reported that the subject repeatedly failed to provide the certifications or assurances that he was required to submit, and that the omissions were knowing and deliberate. Because administrative actions less than debarment in serious misconduct cases can only be effective if they are enforced by significant adverse consequences when they are breached, we recommended that NSF debar the professor for a period of two years.

NSF's Deputy Director issued a Notice of Proposed Debarment to the professor, and counsel for the professor submitted a response objecting to the proposed debarment. The professor and NSF resolved the matter with a settlement agreement that required the professor to provide detailed certifications and assurances in connection with any research proposals or reports he submits to NSF until October 25, 2003. The settlement agreement also stipulated that any breach of the certification and assurance requirements will constitute a material breach of the agreement, warranting debarment under NSF's debarment regulation.

Significant Administrative Cases

Verbatim Use of Project Management Text from Others' Proposals. Two cases were closed involving Research Experiences for Undergraduates (REU) proposals, each of which included about three pages of material allegedly copied, verbatim, from an earlier successful REU proposal written by other authors. The allegedly copied materials described procedures to track student progress and success with the project.

Neither proposal distinguished the allegedly copied materials, included citations to the source document, nor contained an acknowledgement for permission to use the materials. At the same time, the biographical sketches in the proposals suggested

that each PI had some prior working relationship with the source document's authors. The PIs provided information to us showing their participation in the development of the source document, which we independently confirmed.

Although these two cases were resolved quickly and confidentially, the question of the appropriate use of common (boilerplate) text has come to our attention before. In three other cases (SA citations) the PIs did not have permission for their extensive unattributed use of text authored by others. In each of these cases, NSF concluded that the PIs committed research misconduct. NSF debarred two and imposed certification and assurance requirements on the third. In resolving these cases we learned that either the institution or the original authors had a practice of sharing these sections with other PIs at their own, or other institutions. This practice raises issues, such as when, if ever, is it appropriate for PIs to use these types of materials without citation; what role should grantees play in overseeing the management sections of proposals; and what, if anything, should NSF do to change the expectations in the project management section of these types of proposals. Institutional or departmental policies that articulate acceptable practices for using and sharing "boilerplate" text would ensure that authors understand the authorized uses of boilerplate text they authored and may therefore reduce the number of allegations.

University Violates Cost Sharing Requirements. We received an allegation that a northeastern university committed fraud by repeatedly using Federal money as a source for matching funds under a Young Investigator grant. This Young Investigator grant consists of an annual base award of $25,000 plus up to $37,000 of additional funds per year on a dollar-for-dollar match of funds from eligible sources. Under the requirements applicable to this grant, funds from other federal agencies were not eligible as a source for matching. We conducted an investigation into the fraud allegations and concluded that although Federal funds were used as a match, there was sufficient evidence to suggest that the institution did not act with fraudulent intent. A concurrent audit report confirmed our conclusion concerning cost sharing. We referred the matter to the Cost Analysis and Audit Resolution Branch of NSF's Contracts, Policy and Oversight (CPO) Division for review and resolution. CPO concluded that the university should repay $53,900, and CPO is in the process of recovering these funds.

Other Investigative Activities

Concerns Regarding NSF Grantees and the New Bioterrorism Laws

Congress recently enacted two statutes designed to improve the ability of the United States to prevent, prepare for, and respond to bioterrorism and other public health emergencies: the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 and the Agricultural Bioterrorism Protection Act of 2002.

Although the Acts are extensive, of relevance to NSF grantees are provisions requiring: (1) registration of possession, use, or transfer of agents/toxins deemed a threat to public health or a threat to animal or plant health, including recombinant organisms and genetic elements; (2) safety procedures for the transfer of selected agents/toxins; and (3) security requirements for registered facilities to ensure limited access to selected agents/toxins.

Responsibility for administration of the Acts rests on the Department of Health and Human Services (HHS) and the Department of Agriculture (USDA). HHS and USDA must establish a list of "selected agents/toxins," and persons possessing, using, or transferring those agents/toxins must notify HHS or USDA, depending upon the agent/toxin at issue. HHS and USDA must also establish regulations regarding safety procedures for the transfer of selected agents/toxins and security requirements for registered facilities to ensure limited access to the selected agents/toxins. Failure to register and the transfer of agents/toxins to persons not registered are criminal offenses punishable by a fine of up to $500,000, imprisonment up to five years, or both.

According to NSF's FastLane database, there are 28 current grantees that are conducting research using selected agents/toxins. To comply with the Acts, these grantees may be required to notify HHS or USDA and comply with the transfer, safety, and security regulations. We were especially concerned because four of these grantees are small entities or individuals, who may receive no other Federal funding, and may be unaware of these new requirements. We raised our concerns with NSF and recommended that the agency develop mechanisms for determining that awardees are in compliance with the Acts—and particularly to ensure that NSF's smaller grantees are aware of the requirements.

NSF informed us that it would rely on the procedures implemented by HHS and USDA to notify grantees. Although NSF stated that it would contact the particular small grantees we identified, it stated that it would not take any action to ensure knowledge of these new requirements by future NSF grantees, because it believes it is "neither necessary nor appropriate to interfere with or duplicate the notice and enforcement role of HHS and USDA." The Center for Disease Control is also mailing guidance and notification forms to institutions identified as potential users of these toxic agents. We encourage NSF to reconsider this decision, because adding a condition instructing grantees to comply with HHS and USDA bioterrorism requirements could not in any way interfere with or duplicate those requirements, but would provide important information to small entities and individuals that receive Federal funding from no agency other than NSF.

Referral of NSF Patent Disclosure Oversight Review to Office of Audit

We resolved two cases involving disputes over patents and patent disclosures required by the Bayh-Dole Act of 1980 (the Act). Prompted by these cases and reports indicating a sharp rise in the numbers of patent disclosures to the government,

we undertook a limited review of NSF's system for handling patent disclosures. The Act is designed to promote science and technology and to aid the U.S. economy by allowing grantees or inventors to retain the patent rights to inventions developed under Federal funding. Funding agencies are charged with oversight of grantees' disclosures of these inventions and providing notice of confirmatory licenses to the Patent and Trademark Office (PTO). Previous GAO reports have commented on the inefficiencies in the Federal agencies' systems and contained recommendations for improvements.

NSF's regulation implementing the Act designates the Office of General Counsel (OGC) as responsible for administering invention disclosures related to NSF grants. We found that OGC is now making progress towards effectively managing disclosures under the Act. For example, OGC is in the process of reducing a backlog of invention disclosures and is hiring new personnel to ensure that its filings with the PTO are timely. In the absence of such filings, PTO cannot ensure that the information is available to Federal agencies to enable them to exercise the Government's rights. OGC is also now looking for effective ways to work with the National Institutes of Health (NIH) to establish a fully electronic reporting system.

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.

At-Risk Cost Sharing. Cost sharing is identified as "at risk" if an awardee is lagging in meeting its cost-sharing obligation for an award that is still active. In some situations, the awardee may purport to be funding its obligation but lacks internal controls and documentation to support its claim, making it difficult to determine their allowability under federal cost principles.

Management Decision. Management's evaluation of the findings and recommendations included in the audit report, and the issuance of a response or final decision. 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	$0
B. Recommendations that were issued during the reporting period	$444,103
C. Adjustments related to prior recommendations	$0
Subtotal of A+B+C	$444,103
D. For which a management decision was made during the reporting period	$0
i) Dollar value of management decisions that were consistent with OIG recommendations	$0
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	$444,103
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	9	$1,311,543	$21,296
B. That were issued during the reporting period	9	$869,133	$17,805
C. Adjustments related to prior recommendations		$19,443	$0
Subtotal of A+B+C	18	$2,200,119	$39,101
D. For which a management decision was made during the reporting period:	8	$1,017,008	$21.296
1. Dollar value of disallowed costs	N/A	$467,159	N/A
2. Dollar value of costs not disallowed	N/A	$549,849	N/A
E. For which no management decision had been made by the end of the reporting period	10	$1,183,111	$17,805
For which no management decision was made within 6 months of issuance	1	$313,978	$0

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	$6,099,437	$1,406,881	$19,801
B. Reports with monetary findings that were issued during the reporting period:	2	$12,414,037	$9,720,295	$0
C. Adjustments related to prior recommendations	(1)	$0	$(945,141)	$0
Total of Reports with Cost Sharing Findings (A+B+C)	5	$18,513,474	$10,182,035	$19,801
D. For which a management decision was made during the reporting period:	3	$6,099,437	$461,740	$19,801
1. Dollar value of cost-sharing shortfall that grantee agreed to provide	N/A	N/A	$0	$13,595
2. Dollar value of cost-sharing shortfall that management waived	N/A	N/A	$461,740	$6,206
E. Reports with monetary findings for which no management decision has been made by the end of the reporting period	2	$12,414,037	$9,720,295	$0

Status of Internal NSF Recommendations

Open Recommendations (as of 9/30/02)	
Recommendations Open at the Beginning of the Reporting Period	26
New Recommendations Made During Reporting Period	89
Total Recommendations to be Addressed	115
Management Resolution of Recommendations[4]	
Awaiting Resolution	73
Resolved Consistent With OIG Recommendations	42
Management Decision That No Action is Required	0
Final Action on OIG Recommendations[5]	
Final Action Completed	34
Recommendations Open at End of Period	81
Aging of Open Recommendations	
Awaiting Management Resolution:	
0 through 6 months	73
7 through 12 months	0
More than 12 months	0
Awaiting Final Action After Resolution:	
0 through 6 months	2
7 through 12 months	0
13 through 18 months	2
19 through 24 months	4

[4] "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.
[5] "Final Action" occurs when management has completed all actions it agreed to in the corrective action plan.

List of Reports

NSF and CPA Performed Reviews

Report Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds	Cost Sharing At-Risk
02-1-014	For-profit organization	$0	$0	$0	$0
02-1-015	University	$0	$0	$0	$0
02-1-016	Non-profit organization	$0	$0	$444,103	$0
02-1-017	School district	$0	$0	$0	$0
02-1-018	Research institute	$4,434	$0	$0	$0
02-1-019	University	$0	$0	$0	$0
02-1-020	School district	$616,048	$0	$0	$0
02-1-021	School district	$0	$0	$0	$9,480,490
02-1-022	University	$0	$0	$0	$239,805
02-1-023	Community college	$24,578	$17,805	$0	$0
02-1-024	College	$51,842	$0	$0	$0
02-2-006	NSF internal review	$0	$0	$0	$0
02-2-007	NSF internal review	$0	$0	$0	$0
02-2-008	NSF internal review	$0	$0	$0	$0
02-2-009	NSF internal review	$0	$0	$0	$0
02-2-010	NSF internal review	$0	$0	$0	$0
02-2-011	NSF internal review	$0	$0	$0	$0
02-2-012	NSF internal review	$0	$0	$0	$0
02-2-013	NSF internal review	$0	$0	$0	$0
02-2-014	NSF internal review	$0	$0	$0	$0
02-6-003	Audit firm	$0	$0	$0	$0
	Total:	$696,902	$17,805	$444,103	$9,720,295

NSF-Cognizant Reports

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
02-4-006	National observatory	$0	$0	$0
02-4-010	Research consortium	$0	$0	$0
02-4-011	Non-profit organization	$0	$0	$0
02-4-012	Non-profit institute	$0	$0	$0
02-4-013	Non-profit institute	$0	$0	$0
02-4-014	Museum	$0	$0	$0
02-4-015	Museum	$0	$0	$0
02-4-016	Museum	$0	$0	$0
02-4-017	Atmospheric research consortium	$0	$0	$0
02-4-018	School district	$0	$0	$0
02-4-019	Non-profit association	$0	$0	$0
02-4-020	Non-profit association	$0	$0	$0
02-4-021	Non-profit corporation	$0	$0	$0
02-4-022	Research consortium	$0	$0	$0
02-4-023	Non-profit association	$0	$0	$0
02-4-024	Non-profit organization	$0	$0	$0
02-4-025	Foundation	$0	$0	$0
	Total:	$0	$0	$0

Other Federal Audits

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
02-4-021	Non-profit corporation	$53,900		
02-4-022	Research consortium	$8,000		
02-4-023	Non-profit association	$403		
02-4-024	Non-profit organization	$89,862		
02-4-025	Foundation	$20,066		
	Total:	$172,231	$0	$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 was one report remaining that met this condition. The report involves questioned costs, totaling $313,978. The status of recommendations that involve internal NSF management is described on page 52 .

Investigations Case Activity

April 1, 2002 - September 30, 2002

	Preliminary	Civil/Criminal	Administrative
Active Cases From Previous Reporting Period	10	30	31
New Cases	121	13	19
Closed Cases	110	18	29
Active Cases	21	25	21

Investigations Case Statistics

New Referrals	2
Criminal Convictions/Pleas	0
Civil Settlements	0
Administrative Actions	4
Investigative Recoveries[6]	$327,972.91
Research Misconduct Findings by NSF	0
Cases Forwarded to NSF Management for Action	0
Cases Forwarded to NSF Management in Prior Periods Awaiting Action	1
Assurances and Certifications Received[7]	
Number of Cases Requiring Assurances During This Period	4
Number of Cases Requiring Certifications During This Period	6
Assurances Received During This Period	5
Certifications Received During This Period	0
Number of Debarments in Effect During This Period	3

[6] Investigative recoveries include civil penalties, criminal fines, and funds paid in restitution, as well as specific cost savings for the government.

[7] 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 16 FOIA requests compared to 8 in the last reporting period. The response rate ranged between 3 days and 20 days, with a median of 17 days and the average around 14 days.

- We did not receive any Privacy Act requests compared to two received last reporting period.

- We received two appeals this reporting period and two last reporting period. Both appeals were denied. Individuals who are not satisfied with our responses to their requests can appeal to the OGC which neither did this period.

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. 5-6, 47)
- Matters referred to prosecutors, and the resulting prosecutions and convictions. (See p. 35, 47)
- Revisions to significant management decisions on previously reported recommendations, and significant recommendations for which NSF has not completed its response. (See p. 52, 56)
- 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)

Appendix 2

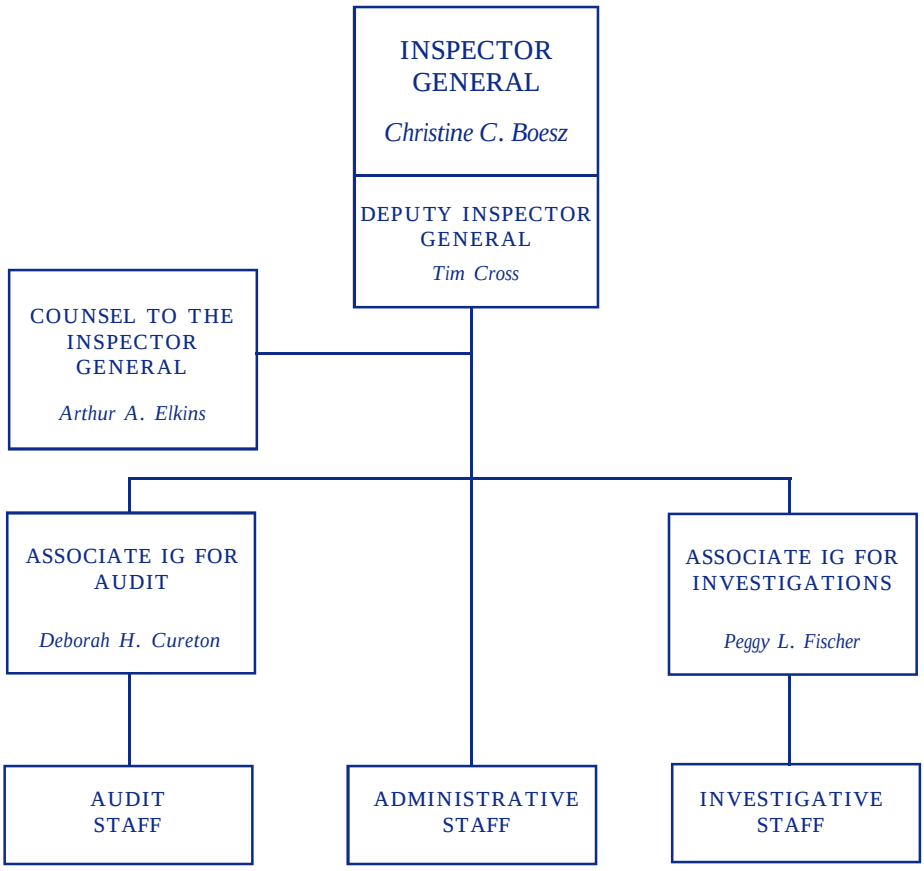
Acronyms

COI	Conflict of Interest
CPO	Division of Contracts, Policy and Oversight
COV	Committee of Visitors
COTR	Contracting Officer's Technical Representative
DACS	Division of Acquisition and Cost Support
DFE	Designated Federal Entity
DGA	Division of Grants and Agreements
DOJ	Department of Justice
ECIE	Executive Council of Integrity and Efficiency
DHHS	Department of Health and Human Services
EHR	Directorate for Education and Human Resources
EPA	Environmental Protection Agency
FBI	Federal Bureau of Investigation
FLETC	Federal Law Enforcement Training Center
FOIA	Freedom of Information Act
GAO	General Accounting Office
GISRA	Government Information Security Act
GPRA	Government Performance and Results Act
GSA	General Services Administration
HHS	Health and Human Services
HUD	Department of Housing and Urban Development
IAB	Industrial Advisory Board
IUCRC	Industry/University Cooperative Research Center
MIRWG	Misconduct In Research Working Group
MRE	Major Research Equipment
MREFC	Major Research Equipment and Facilities Construction
NIH	National Institutes of Health
NSB	National Science Board
NSF	National Science Foundation
OGC	Office of General Counsel
OIG	Office of Inspector General
OMB	Office of Management and Budget
ONR	Office of Naval Research
OSTP	Office of Science and Technology Policy
PCIE	President's Council on Integrity and Efficiency
PI	Principal Investigator
PFCRA	Program Fraud Civil Remedies Act
PTO	Patent and Trademark Office
QCR	Quality Control Review
REU	Research Experiences for Undergraduates
RM	Research Misconduct

Acronyms (cont'd)

SBIR	Small Business Innovation Research
SRA	Society of Research Administrators
SSN	Social Security Number
USAP	United States Antarctic Program
USDA	U.S. Department of Agriculture
USI	Urban Systemic Initiative
USP	Urban Systemic Program
VA	Veterans Administration

Organization Chart



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