Semiannual
Report to the Congress

March 2003

National Science Foundation

ce *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: A group of emperor penguins photographed at Cape Crozier.
NSF/Scripps Institution of Oceanography

This report highlights the activities of the National Science Foundation (NSF) Office of Inspector General (OIG) for the six-month period ending March 31, 2003. It has been a most productive time. We issued 15 audit reports that identified $9,720,295 in promised cost sharing "at risk" of not being contributed, $4,159,513 in funds to be put to better use, and an additional $324,971 in questioned costs. NSF disallowed $851,014 during the past 6 months that had been questioned in previous audit reports. In addition, we closed 18 civil/criminal cases, 15 administrative cases, and made $1,524,127 in recoveries. Two cases were referred to the Department of Justice.

The Office of Inspector General was established 25 years ago to be a watchdog for the taxpayer. People that are part of the OIG community are often asked the question: who watches the watchdogs? As members of Congress know, we are accountable to many. The NSF OIG reports to both the National Science Board and to Congress. The Office of Management and Budget reviews our budget request. The Executive Council of Integrity and Efficiency and even the press play a role in evaluating our performance. And we can count on the agency to double-check our facts. To further enhance our accountability to the public, we include in this Semiannual Report our first OIG Performance Report. The quality improvements discussed in the Report have already contributed to the successful peer review of our audit operations in this period, and include preparations for the first peer review of our Investigations office, scheduled to take place during the next reporting period.

In an effort to collect more information about best practices within our profession, we have held many productive discussions and exchanges over the past few years with our counterparts among the Federal OIGs and from other countries as well. These contacts have proven helpful not only in improving audit and investigative methods, but in developing performance measures that will gauge the overall effectiveness of our office. In this vein we will be hosting a conference at the end of this month that will be attended by representatives of 14 oversight agencies representing 10 countries.

Finally, we note a significant change in the way the National Science Board carries out its responsibilities. The Board has surmounted various logistical obstacles within a short time frame to open its committee meetings to the public for the first time. The new openness is certain to improve understanding among the science community and the public, of NSF and the challenges it faces.

Christine C. Boesz, Dr.P.H.
Inspector General
May 15, 2003

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Executive Summary

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- In March, we issued our report on the audit of the medical and occupational health and safety programs that serve the United States Antarctic Program (USAP). We found that these programs generally protect the overall health and safety of USAP participants. However, the review identified health and safety issues related to aging facilities and infrastructure. Since the USAP staff depends on the facilities for protection from the harsh elements, we recommended that NSF develop a capital asset management plan for the USAP. In order to assure that the plan is funded, we also recommended that NSF establish a separate line item within its budget so that it does not have to compete with other priorities for its funding.

- NSF negotiates indirect cost rates for 112 awardees that receive approximately $585 million of Federal funding annually. Since most of these organizations are relatively small and possibly unfamiliar with the complexities of indirect cost proposals, we audited four indirect cost rate proposals during this period. Overall, we found that the organizations did not correctly calculate their proposed indirect cost rates and overstated their rates by an average of 8 percentage points. Four of the grantees could not support direct or indirect costs claimed because of either a lack of documentation or inadequate systems for tracking labor costs. In addition, two awardees did not submit

annual indirect cost proposals to NSF as required. While not necessarily representative of all awards, the findings suggest that the negotiation of indirect cost rates may need increased scrutiny by NSF. **See p. 20.**

- An NSF grantee agreed to pay $1.4 million to the government to settle a case that involved allegations of conflicts of interests, non-competitive procurement, and the submission of proposals to NSF that omitted material information. The grantee, a non-profit organization that provided computer network services to institutions, carried out a complicated reorganization for the apparent purpose of realizing a benefit from the sale of a lucrative network. Our investigation confirmed the substance of the allegations made by a former executive, and also found that the grantee violated NSF requirements concerning program income. **See p. 31.**

- Three universities that were victimized by fraud recently reported making management improvements to prevent future occurrences. In one case resolved this period, an audit report disclosed that a university grant administrator fraudulently charged approximately $235,000 to various university grant accounts. The fraud included $79,220 to Federal grant accounts, of which $3,480 was charged to an NSF grant account. The administrator pled guilty to one count of mail fraud, and was sentenced to 18 months in prison followed by 3 years of supervised release, and ordered to pay restitution of $215,835.05. We recommended that NSF debar him for three years. **See p. 34.**

- A computer scientist incorporated 90 lines of verbatim text from another scientist's successful proposal into his own Faculty Early Career Development (CAREER) proposal, as well as unattributed text from a dozen other sources. Moreover our review of 4 earlier NSF proposals, as well as other works by the scientist, uncovered more indications of plagiarism that were previously unknown. We recommended that NSF find that the subject committed misconduct in science and send him a letter of reprimand. We also recommended that the subject be debarred for three years and excluded from serving as an NSF reviewer, advisor, or consultant for a period of five years. **See p. 36.**

- In OIG's first Performance Report, most goals were achieved. Many of the goals were aimed at improving key internal processes. The Office of Audits successfully implemented initiatives such as "team based auditing", and the development of new quality checks for documenting and reporting on audits. These quality improvements contributed to a successful peer review of audit operations by another Federal OIG. The Office of Investigations carried out a major revision of its policy manual, conducted a mock peer review, and wrote two articles published in professional journals. In addition, Audits and Investigations collaborated to develop an effective process for referring matters that require the other's professional expertise. **See p. 41.**

OIG Management Activities

Congressional Testimony

On April 3, 2003, Dr. Boesz testified before the U.S. Senate Appropriations Subcommittee on VA, HUD and independent agencies about four of the most significant challenges faced by NSF management: management of large infrastructure projects, Antarctic infrastructure planning, award administration, and the strategic management of human capital.

Dr. Boesz noted that the OIG had conducted two audits focusing on projects funded through NSF's Major Research Equipment and Facilities Construction appropriation account, and that approximately half of the recommendations remain to be implemented. The IG also discussed a report on health and safety issues in the Antarctic issued last month, which recommended that NSF address its aging facilities and infrastructure and that it initiate capital asset management planning and separate line item budgeting processes.

With regard to award administration, Dr. Boesz noted that this challenge was based on a reportable condition that appeared in NSF's financial audit report. The auditors recommended that NSF implement a comprehensive risk-based post-award monitoring program. Finally, she testified that NSF's human capital management plan is not expected until 2004 and that meanwhile there is an urgent need for training, office space, and equipment to support current and future human capital needs. The full text of Dr. Boesz's testimony is available on the NSF OIG website: www.oig.nsf.gov.

Management Challenges

Last December, OIG submitted its annual statement of what the office considers the most serious management and performance challenges facing NSF. Progress has been made on several of the challenges that reappear from last year's list and actions are underway to address the remaining issues. While the progress made to date is encouraging, corrective actions have not advanced to the point where NSF can afford to become complacent. The 11 specific challenges that OIG has identified through audits and general knowledge are summarized from the original letter below.

Workforce Planning and Training. Planning for NSF's future workforce needs and training the large number of temporary staff continue to be serious concerns. NSF has contracted for a multi-year "business analysis" of its operations that will include a human capital management plan identifying its future workforce requirements. Thus far, the contractor has reported that 40% of NSF's permanent workforce is currently eligible for either retirement or early out, and that number will grow to nearly 60% by 2007. Personnel records also indicate that since 1996, NSF's reliance on temporary staff has increased in tandem with the size of its appropriation. The increase in temporary staff places a greater burden on the agency to continually recruit and train these personnel and find them suitable office space.

Budget for Administration and Management. It is increasingly apparent that NSF's staff is in need of two basic resources: office space and travel funds. Assistant Directors are reporting that program managers are being forced to double up in offices or use cubicles that are inadequate for them to perform their work. If office space is inadequate at current workforce levels, it will severely constrain the agency's ability to add the staff needed to grow at the rate intended by the NSF Authorization Bill (HR 4664). The shortage of travel funds affects NSF's ability to successfully address several of the management challenges identified below. Funds are needed to conduct on-site administrative and technical reviews and properly oversee large infrastructure projects and other awards. NSF should seek to maximize the effectiveness of staff by allocating more funding for these two essential resources.

Management of Large Infrastructure Projects. The effective management of NSF's large infrastructure projects has been a concern of the OIG for several years. In particular, fund control and the accurate accounting for infrastructure projects have been cited as a problem in recent audit reports. At the request of a Senate Appropriations Subcommittee, we performed an audit this past year of the funding for major research equipment and facilities to determine if NSF used its Major Research Equipment and Facilities Construction (MREFC) appropriation solely to fund the construction and acquisition costs for these projects as required. We found that NSF could not ensure that it stayed within its authorized funding limits or that it provided accurate and complete information about project costs to key decision makers. Since the release of the audit report, NSF has reported progress toward correcting the types of problems identified.

Dr. Boesz is greeted by Prof. Luciano Maiani, Director General of CERN, during a visit to the Large Haldron Collider Project.

Award Administration. Although the agency has a robust system of award management over its pre-award and award disbursement activities, NSF needs and is developing a comprehensive, risk-based management program to monitor its grants during the post-award phase. NSF should establish policies to ensure that awardees are complying with the requirements of their grant agreements, including 1) implementing a comprehensive risk-based program that describes when and how monitoring will occur; and 2) establishing a system of risk assessment of awardees to ensure that each receives the appropriate level of oversight. NSF recently issued a draft version of a Risk Assessment and Award Monitoring Guide and has been working closely with OIG to address this challenge. The Guide is generally responsive to the recommendations outlined in the FY 2001 Management Letter Report, however, more detail will be needed before the Guide can serve as an effective reference covering the full range of issues that are likely to face many grant and program officers.

Cost Sharing. Our audit work indicates that NSF grantees continue to experience significant problems in accounting for cost sharing, raising questions about whether required contributions are actually being made. The issues cited in our reports are primarily related to the commingling of reimbursable and cost-shared expenses, time and effort reporting, and cost-sharing certification. Acting on a recommendation by NSF, the National Science Board recently modified NSF's policies to eliminate voluntary cost sharing from proposals. While the new policy may help limit the amount of cost sharing borne by awardees, problems with how it is accounted for remain.

Data Security. Although NSF has made significant progress in strengthening data security in recent years, more improvements are needed. Our FY 2002 review of NSF's information security program identified three significant deficiencies related to weaknesses in access controls, the security management structure, and the certification and accreditation of major systems. Although NSF management disagreed with our assessment of the severity of these problems, it agreed with our recommendations and is taking action to correct the problems. Despite problems, we commend the agency for many of the improvements made in its security program over the past year.

GPRA Data Quality. In order to achieve the performance-oriented government envisioned in the President's Management Agenda, the Office of Management and Budget (OMB) has directed agencies to align program activities with outputs and outcomes by FY 2004. However, according to an August 2002 report on performance, budget, and cost integration prepared by an outside consultant hired by NSF, Division Directors (DDs) have been critical of the large number of annual GPRA performance goals presented by NSF and suggested they be prioritized. The report stated that "DDs also questioned the value of the GPRA measures and mentioned that they do not use them to develop their budgets." A majority of DDs surveyed also indicated that performance information captured by NSF institutionally was inadequate and

had to be supplemented through the efforts of their respective staffs. If performance measures are not relevant to either the preparation of budgets or management of a program, an important purpose for compiling GPRA information has been overlooked.

Cost Accounting Systems. Managerial (cost) accounting information is used to assess operational effectiveness and efficiency and is also useful in informing capital investment decisions such as prioritizing the funding of large infrastructure projects. In the OIG's FY 2001 Management Letter Report, our auditors found that NSF had not developed a cost accounting system adequate to track cost data either by infrastructure project or by strategic outcome goal. To obtain a full accounting for these projects or outcomes, NSF currently must perform additional processing, some of it manual, that increases the risk of errors and reduces its usefulness to decision makers. NSF recently contracted with a consulting company to identify options for establishing additional cost accounting and performance measurement capabilities. As a result, NSF developed a draft action plan to achieve better alignment between resources and goals of the agency. Once OMB approves the final plan of action, NSF has indicated it will begin implementation.

Management of U.S. Antarctic Program. Our audit work continues to focus on Antarctic support activities because of their many inherent risks. One issue that has been raised in Committee of Visitors (COV) reports, as well as our audit work, is the need to improve long-range capital planning and budgeting for repairing and maintaining the Antarctic infrastructure, including facilities, transportation, and communications. As a recent COV report noted, most facilities and equipment have been extended well beyond their useful lives. While OPP has upgraded some of the facilities and equipment, there are still a considerable number that are approaching or have exceeded their useful lives. Old buildings and equipment present increased operational risks, and in some cases, may pose safety and health concerns. Another important element of OPP's plan to improve infrastructure is the need to acquire specially modified tractors and equipment for support of more overland science traverses. Such traverses are not only useful in conducting research projects, but could deliver fuel and other supplies to South Pole Station and other research locations, freeing LC-130 aircraft to perform other missions.

Broadening Participation in the Merit Review Process. Increasing the participation of minority scientists as proposers, reviewers, and investigators, while maintaining the integrity of the award process, remains an important challenge for NSF. The National Academy of Public Administration last year recommended establishing broader-based review panels with participants drawn from a wider range of institutions, disciplines, and underrepresented minorities. However, NSF's efforts to track the demographics of the reviewer population have been hampered by the desire of many reviewers not to disclose their race or ethnicity. NSF's Advisory Committee on GPRA while noting progress commented: "NSF should consider carefully the demographic changes that are anticipated in the academic research community. The agency should develop and implement strategies to ensure as much

as possible that its processes incorporate broad representation of the full demographic range of the future research community." We agree with the Committee that NSF's success in broadening participation in the merit review process will help determine its future effectiveness.

Math and Science Partnership. As the performance of American school children on math and science tests has lagged behind other countries, NSF was designated in 2001 as the lead agency on a key element of the President's initiative, *No Child Left Behind,* aimed at strengthening and reforming K-12 math and science education. The agency has already dispensed $147 million for *comprehensive* awards designed to improve student achievement at all grade levels, and $90 million has gone to *targeted* partnership grants that focus on specific disciplines or grade ranges. The sustained involvement of NSF remains essential. NSF staff will need to help coordinate the efforts of the various parties, monitor the progress of the projects, and ensure that federal funds are handled properly, while at the same time administering the subsequent program solicitation of approximately $200 million.

Legal 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 the National Science Foundation's (NSF) programs and operations. We perform these tasks for the purpose of providing leadership in activities that are designed to promote economy, effectiveness, efficiency, and the prevention of fraud, waste, abuse and mismanagement. We also keep Congress and NSF management informed of problems and monitor legal issues that may have a broad effect on the Inspector General community. The following issues merit discussion in this section.

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

We support legislation to amend PFCRA to include NSF and the 26 other DFE agencies that are currently excluded from participation under PFCRA's enforcement provisions. The issue of NSF's inclusion under PFCRA has been raised in several prior semi-annual reports, and note that NSF has actively supported our recommendation. The Office of Inspector General's concern involves the ability of "Designated Federal Entity" (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 DFEs are predominantly smaller agencies that are more likely to have cases involving smaller dollar amounts. 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 $150,000.00. Using the enforcement provisions of PFCRA will enhance the recovery efforts of NSF and other DFE agencies in instances of fraud that fall below PFCRA's financial cap of $150,000.00. We believe that by not including DFE agencies under PFCRA, PFCRA fails to maximize its potential. However, amending PFCRA to include NSF and the other DFE agencies will further the OIG community's statutory mission to deter fraud, waste and abuse.

Senate Staff Professional, Cheh Kim (center) confers
with Art Elkins, Counsel to the IG, and Dr. Boesz
at a recent OIG conference

NSB Requests Sunshine Act Interpretation

The newly enacted National Science Foundation Authorization Act of 2002, Pub. L. No. 107-368 (2002), requires the National Science Board (NSB) to open its committee, subcommittee and task force meetings to the public in accordance with the Government in the Sunshine Act, 5 U.S.C. § 522b (2000). At the request of the Board's Chairman, our office researched the openness requirements of the Sunshine Act and their application to Board meetings, particularly the meetings of its various subdivisions. Our research suggested several issues for the Board to consider as it develops policy for implementing the open meeting requirements of the NSF Authorization Act of 2002.

The first matter to be considered are the circumstances under which NSB discussions might be considered a "meeting". We suggested that the Board carefully consider the nature of the business that it conducts through its subdivisions and whether their discussions are deliberations that trigger the openness requirements of the Sunshine Act. We also evaluated the Sunshine Act's exemptions to open meetings in light of the typical business conducted by the Board and its subdivisions and suggested topics of discussion that may properly fall within an exemption and those that may not. This information will assist the Board in making future decisions regarding when closure of a meeting is proper.

Finally, we suggested that the Board consider educating its members on the procedural and substantive requirements of the Sunshine Act. Through greater awareness of the open meeting requirements, Board members will have the tools necessary to know when a meeting occurs and make informed decisions as to when to properly close a meeting. Since the beginning of the year, the Board has succeeded in achieving greater openness in its committee meetings.

Outreach / Prevention Activities

Our office continues its efforts to educate those in the awardee and government communities about our work. In addition to delivering presentations to NSF grantees at conferences and university meetings, we have opened links between international agencies engaged in science oversight, spearheaded working groups on grant fraud and research misconduct, written papers on fraud and conflicts of interests, provided training to the IG community, and presented an overview of the OIG role to government employees.

Partnering with International Agencies. NSF OIG is playing a leading role in establishing channels of communication between science oversight agencies around the world. In December, we hosted visitors from the National Natural Science Foundation of China (NSFC). The NSFC modeled itself after NSF and is particularly interested in how NSF, the OIG, and the National Science Board oversee its large and diverse research portfolio. Over the two-day visit, we had a number of informative discussions on a variety of audit and oversight issues. The delegation also visited the National Aeronautics and Space Administration OIG to compare how other federal agencies with a different mission handle their oversight responsibilities. As part of our exchange with NSFC, we are hosting an NSFC manager as an intern for a 6-month period. In March, we met with visitors from the Korea

A delegation from The National Natural Science Foundation of China, led by Vice President, Li Zhuqi (seated center), poses with OIG staff during a December visit. Dr. Stanley Jaskolski of the National Science Board (standing far right) also attended the meetings.

Science & Engineering Foundation and discussed the role of the OIG in the Federal government and various audit related issues.

The Inspector General is sponsoring an international workshop on accountability and oversight in Paris, France, on May 27 and 28, 2003. The primary purpose of the workshop is to gain a better understanding of best practices with respect to the auditing of science projects and to look at accountability for international collaborations.

OIG Working Groups. We organized and hosted a meeting of the Grant Fraud Working Group for OIG offices. During the October 2002 meeting, we presented a three-part program focusing on critical issues involved in grant fraud including: the regulatory requirements in OMB circulars and what auditors look for when conducting an audit; possible indicators of grant fraud, particularly with regard to motive, opportunity, and method; and specific categories of grants that have proven to be most susceptible to fraud. Based on the favorable feedback received from participants, plans are in progress to host the next meeting during the Summer/Fall of 2003.

We also continued to support the activities of the Inspector Generals' Misconduct in Research Working Group chaired by the NSF IG. For instances in which an agency rather than the OIG investigates research misconduct, we developed an implementation checklist to guide OIGs in evaluating the agency process.

Publications. Our article, "Research Misconduct and its Relationship to Fraud," was published in the Journal of Public Inquiry, Fall/Winter 2002 (see www.ignet.gov). The article outlines our office's procedures for investigating research misconduct, highlights past instances in which research misconduct cases became criminal fraud cases, and encourages OIGs to either investigate these allegations or provide oversight of agency research misconduct investigations.

Another article, "Key Issues in Conflict of Interest for Scientific, Engineering and Educational Research", appeared in The Journal of Research Administration[1] published by the Society of Research Administrators (SRA). The concepts discussed in this paper, along with other compliance issues, were presented at workshops during the SRA Annual Meeting. We also prepared and displayed a poster featuring COI issues, which received the 2002 Best Poster Award at the SRA Annual Meeting.

Presentations. OIG staff presented at the bi-annual Conference for Deaf and Hard of Hearing Federal Employees about the history, mission, and audit and investigative responsibilities of the OIG. Our presentation helped to familiarize hearing impaired feds with OIG activities and reduce their uneasiness in reporting allegations of fraud, waste, and abuse. The conference was sponsored by the Deaf & Hard of Hearing in Government, a non-profit organization that serves as a national resource for the federal government.

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[1] Volume XXXIII 2002, Numbers 2 and 3

We also provided instructors for the new IG Academy course, Editing Investigative Products Training Program (see www.tigta.gov/igacademy/course_igeiptp.html). The three-day course provides investigations' supervisors with the tools necessary to effectively and responsibly edit investigative reports, and to develop the writing skills of their subordinates. Our office provided instructors and course materials for modules on legal issues and language development.

Sherrye McGregor, OIG staff attorney, speaks to university administrators about compliance issues.

Presentations were also made to various awardee groups on a variety of issues including the role of the OIG, the audit planning and audit selection process, typical audit findings, and suggestions for award administration and oversight at the grantee institution. The groups include:

- Experimental Program to Stimulate Competitive Research (EPSCOR)

- Historically Black Colleges and Universities-Undergraduate Program (HBCU-UP)

- Tribal Colleges and Universities Program (TCUP)

- Advanced Technological Education Program (ATE)

- Urban Systemic Initiatives (USI)

- Council for Undergraduate Research

- National Council of University Research Administrators (NCURA)

- Council on Governmental Relations (COGR)

Quality Certifications

The following certifications of key internal control systems of the NSF Office of Inspector General offer assurance to our stakeholders of the integrity and accuracy of our processes and products.

Office of Audit Passes Peer Review

Government Auditing Standards require OIGs to have an external quality control review conducted of its audit operations and quality control system at least once every three years. The purpose of the peer review is to determine whether the

audit organization under review has a quality control system in place to provide reasonable assurance that it is following all applicable auditing standards. During this reporting period, the United States Postal Service (USPS) OIG conducted an external quality control review of our audit operations. We are pleased to report that USPS-OIG found that our quality control system provides reasonable assurance that our audits are conducted in conformance with auditing standards. The peer review report made 2 constructive comments including the improvement of audit documentation, and the need to obtain timely background checks of OIG employees. All issues are being addressed.

OIG Receives Certification from the Office of Special Counsel

Under Federal law, the head of each agency is required to ensure that Federal employees are informed of their rights regarding the Whistleblower Protection Act (WPA) and prohibited personnel practices (PPP). The Office of Special Counsel (OSC) has created a certification program under which it will certify that an agency is in compliance with this law if the agency undertakes 5 steps:

1. Placing informational posters at agency facilities;

2. Providing information about PPP's and the WPA to new employees as part of the orientation process;

3. Providing information to current employees about PPP's and the WPA;

4. Training supervisors on PPP's and the WPA; and

5. Creation of a computer link from the agency's web site to OSC's web site.

NSF OIG has successfully completed each of these steps and received OSC certification.

Information Technology Certification

In February, we submitted a certification and accreditation package to the CIO, that contained an internally prepared Security and Contingency Plan for the OIG server, and a "System Testing and Evaluation Questionnaire" and "Certification and Evaluation Report" prepared by IBM Business Consulting Services. These documents, prepared in accordance with NSF IT security policies and guidance from the National Institute of Standards and Technology (NIST), were the basis for the IG to certify that the OIG server substantially meets all applicable Federal policies, regulations and standards.

Audits & Reviews

Significant Reports

Financial Statement Audit Recommends Increased NSF Award Oversight and Information Security

During this semiannual period we issued the Fiscal Year 2002 Independent Auditor's Report, which includes the results of the information security review. NSF received its fifth consecutive unqualified opinion on the financial statements. However, it is important to note that the audit report identified two reportable conditions in its Report on Internal Control over Financial Reporting. They relate to (1) post-award procedures for monitoring awardees' administrative and financial management and tracking of NSF-owned property, plant and equipment in the custody of awardees, and (2) entity-wide information security. Both of these findings were also identified as reportable conditions in the Fiscal Year 2001 Report on Internal Control over Financial Reporting and have been reported as management and performance challenges for the past two years.

Improving financial management and information security has been an important priority of the Federal Government for many years. Since 1990, Congress has enacted several laws aimed at improving 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

The FY 2001 audit report stated that NSF did not have a comprehensive and systematic risk-based process for monitoring its grants once they have been awarded. The auditors found that while NSF's award management system includes financial and administrative

monitoring such as requiring the regular submission of federal cash transaction reports, its post-award monitoring is not systematic, risk-based, documented, or consistently applied. As a result, the risk of waste fraud and mismanagement, non-compliance with laws and regulations, and inaccurate reporting is increased. The risk grows larger as NSF's awards become more costly and complex in nature.

NSF made progress in FY 2002 toward improving its post-award monitoring activities. The agency developed a draft policy for conducting post-award oversight of NSF's high-risk awardees and invited comments from OIG. We anticipate that our suggestions will be incorporated in the final version and look forward to the implementation of the policy.

The report also states that NSF needs to further improve its process for monitoring and reporting on at least $200 million of assets owned by NSF but held by awardees. Since the finding was first reported in the FY 2001 audit, NSF has developed procedures to periodically confirm the existence of these assets. However, the procedures have not yet been implemented and do not go far enough. The auditors recommend that NSF should also periodically assess the condition of these assets as well as ensure the adequacy of the awardee's systems for providing their oversight and safekeeping.

Finally, the report also identifies specific areas of vulnerability in NSF's electronic data information systems that increase the risk of unauthorized access to, and modification of financial, programmatic, and other sensitive information. Three of these vulnerabilities were considered significant. They include the need for NSF to (1) improve access controls, (2) strengthen its security management structure, and (3) fully implement its certification and accreditation process. NSF has recently undertaken corrective actions such as filling key management positions responsible for NSF's information system security program, and accrediting 6 of its 20 major systems. However, NSF still needs to ensure that: networked resources and critical production systems are securely configured and security controls are periodically reviewed to prevent unauthorized access to these resources; security responsibilities and related authorities are adequately assigned and delegated; and all major systems are certified and accredited.

NSF management generally concurred with the findings regarding each of the reportable conditions. However, they do not believe that the problems cited constitute significant deficiencies that rise to the level of reportable conditions. We will continue to report on the status of NSF's corrective actions in the next Semiannual Report. In the next reporting period, we will also issue our FY 2002 Management Letter, which will address other matters involving NSF's internal control over financial reporting.

Improvements Needed in Antarctic Infrastructure Planning

In March, we issued our report on the results of our audit of the medical and the occupational health and safety programs instituted by Raytheon Polar Services Company. Raytheon is the primary support contractor for the United States Antarctic Program (USAP)[2]. We found that these programs generally protect the overall health and safety of USAP participants. Raytheon's medical program has effective policies and procedures in place to provide oversight and guidance for healthcare delivery to a medically screened population in Antarctica. These guidelines are effective in screening and qualifying candidates for participation in the USAP, and for delivering routine and emergency healthcare in this remote environment.

Similarly, the occupational health and safety program ensures a generally safe and healthful work environment free of recognized hazards. Raytheon has demonstrated a strong commitment to improving and maintaining the health and safety and medical programs, and NSF's review and oversight help to ensure the continuing quality of these programs.

However, the review identified health and safety issues related to aging facilities and infrastructure in Antarctica. NSF's Office of Polar Programs Committee of Visitors has raised similar concerns. Because the USAP staff depends on the facilities for protection from the harsh elements, ongoing maintenance and upgrades are necessary to prevent health and safety crises from occurring. Therefore we have recommended that NSF develop life cycle planning for the USAP assets that will serve as a basis for a capital asset management plan. In addition, in order to assure that the plan is funded, we recommended that NSF establish a separate line item within its budget so that it does not have to compete with day-to-day USAP operations or scientific research for its funding. NSF disagreed with this recommendation, noting the importance of retaining the flexibility to respond to emerging situations.

In addition, we recommended that NSF: develop and implement a formal work center assessment program to identify hazards and conditions that contribute to musculoskeletal injuries at specific work centers; develop procedures for overseeing the shipboard medical programs on the R/V Nathaniel B. Palmer and the R/V Laurence M. Gould, as well as ensure Raytheon's compliance with its contractual responsibility to provide emergency medical technicians (EMT) on board these ships. NSF generally agreed with these recommendations.

Although the Antarctic continent offers compelling scientific opportunities, its extreme and isolated environment presents many challenges in protecting the overall

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[2]Raytheon Polar Services Company (Raytheon), the USAP's primary support contractor, is responsible for maintaining a medical program, which includes medical screening of personnel deploying to Antarctica, and the staffing and operation of medical clinics at the three U.S. research bases on the Antarctic continent and aboard the two research vessels that support the USAP. Raytheon is also responsible for providing an occupational health and safety program in Antarctica.

health and safety of the many employees, contractors, and researchers who participate in the USAP. Temperatures at the USAP's three year-round research stations range from an average high of 2° Centigrade at Palmer Station to an average low of minus 28° Centigrade at South Pole Station.

A McMurdo Station worker inspects two older D-8 Caterpillar bulldozers in front of the Chalet administration building. The D-8s have not been built since 1963 and have been working in Antarctica for 50 years.

Indirect Cost Audits Indicate Rates Are Overstated

In FY 2001, NSF funded over $1.2 billion in indirect costs. Indirect costs are expenses that pertain to common administrative support activities, such as operation and maintenance of buildings, rent, payroll and accounting functions, and information technology services. Unlike direct costs, which are charged in their entirety to awards, indirect costs are *allocated* based on an indirect cost rate that the awardee negotiates with the Federal Government.

NSF negotiates indirect cost rates for 112 awardees that are primarily non-profit organizations. They receive approximately $585 million of Federal funding annually, $375 million of which is from NSF. Since most of these organizations are relatively small and unfamiliar with Federal award requirements, particularly the complexities of developing an indirect cost rate proposal, they pose a risk for improper indirect cost charges to NSF and other Federal agencies. Accordingly, on the basis of our risk analysis and in consultation with the NSF office that negotiates indirect cost rates, we selected ten organizations for audits of indirect cost rate proposals. In FY 2001, these ten organizations received nearly $40 million in Federal awards, of which approximately $12 million was for indirect costs.

In this reporting period we completed four of these audits and resolved outstanding issues for one other. Overall, we found that the organizations did not correctly calculate their proposed indirect cost rates and, on average overstated their indirect cost rates by 8 percentage points. All of the organizations we audited misstated the indirect cost pool and the direct cost base, the two components of the indirect cost rate. Four of the grantees could not support direct or indirect costs claimed because of either a lack of documentation or inadequate systems for tracking labor costs. In addition, two awardees did not submit annual indirect cost proposals to NSF as required. Although we do not know if the findings in our sample of these five high-risk institutions are representative of potential findings within the population of 112 awardees, the findings suggest that the negotiation of indirect cost rates may need increased scrutiny by NSF. The table below summarizes the common problems we found in the five audits.

Indirect Cost Issues

Type of Non-Profit Institution	Incorrect I/C Pool	Incorrect Direct Cost Base	Lack of Supporting Documentation	Inadequate Labor Cost Tracking	Proposals Not Annual
Natural History Museum	X	X	X	X	
Scientific and Professional Society	X	X	X	X	X
Science Educators' Association	X	X	X	X	X
Biological Laboratory	X	X			
Mathematics Educators' Association	X	X		X	

Indirect Cost Pool and Direct Cost Base Miscalculations

A high indirect cost rate benefits awardees since it enables them to claim more costs for reimbursement. Therefore, to produce an advantageous indirect cost rate, awardees have an interest in *increasing* the indirect cost pool and *decreasing* the direct cost base. We found that all the awardees included unallowable costs in the indirect

cost pool and incorrectly excluded costs that should have been included in the direct cost base. Federal cost principles prohibit certain costs from being charged to Federal awards or included in the indirect cost pool. The direct cost base must include all costs that directly fund the organizations' primary research and educational missions. In addition, costs that may "distort" the base, such as equipment, subcontracts, and participant support costs, typically should be excluded.

Indirect Cost Pools. The awardees included $208,525 of costs that Federal cost principles explicitly state are unallowable in their indirect cost pools:

- An association of mathematics educators included $148,407 of bad debt expense.

- An association of science educators included $25,739 of investment losses.

- Two associations of educators and one biological laboratory included a total of $16,725 of questioned travel costs.

- A biological laboratory and a natural history museum included $6,946 of entertainment costs.

- A natural history museum and a scientific and professional society included $6,552 of alcohol expenses.

- An association of science educators and a natural history museum included $4,156 of penalty costs.

Direct Cost Bases. The awardees also incorrectly excluded $2.4 million that should have been included in the direct cost base:

- Three of the five awardees understated their direct cost bases by a total of $2 million because for a period of up to three years they misclassified direct program costs or member-related costs as indirect costs.

- Two of the five awardees incorrectly excluded $407,894 of costs that were directly related to their programs.

Inadequate Support for Claimed Costs

Four awardees could not support costs included in the indirect cost pool or the direct cost base, including labor costs of employees who worked on both direct and indirect cost activities.

Lack of Supporting Documentation. Three awardees did not have adequate records to support proposed costs. For example:

- A natural history museum did not have adequate records to support $726,486 of depreciation included in the indirect cost pool or $62,476 of voluntary service costs in the direct cost base.

- A scientific and professional society did not have invoices to support $371,668 of credit card charges included in the indirect cost pool.

- An association of science educators lacked support for $29,362 of invoices included in the indirect cost pool.

Inadequate Labor Cost Tracking. Four awardees could not support claimed labor costs because they lacked adequate accounting processes to track and document indirect labor costs. For example:

- Two organizations could not support $1 million of labor costs charged to their indirect cost pools because of inadequate systems to track, document, or certify costs of employees who worked on both direct and indirect cost activities.

- One organization overstated indirect labor costs by $2,501 because the staff did not update payroll time allocations each period.

Proposals Not Submitted Annually

Two awardees did not submit yearly proposals to NSF, a violation of Federal requirements. As a result, NSF was unable to make timely corrections to overstated indirect rates in order to prevent over-recoveries on existing awards and the continued use of outdated rates in new NSF and other Federal awards.

Indirect Cost Rates Are Overstated

By including incorrect, unallowable, or unsupported amounts in their proposals, awardees overstated their indirect cost rates by 4 to 11 percentage points, with an average overstatement of 8 percentage points. Based on our audit-calculated rates, two awardees over-recovered a total of $112,209 on their existing awards. Further, we estimate that for four awardees NSF will save approximately $830,000 of costs over a period of five years as a result of using the audit-calculated rates.

The awardees generally overstated the indirect cost rates in the proposals submitted to NSF because of accounting system weaknesses, such as failure to separately identify allowable and unallowable costs in charts of accounts or general ledgers and because their employees did not understand Federal and NSF requirements. In general, we have found that non-profit organizations do not adequately train their employees to understand the complex rules surrounding the preparation of indirect cost proposals. NSF may need to provide more oversight of and technical assistance to the organizations for which it negotiates indirect costs.

We recommended that NSF require the awardees to: develop and implement written procedures to prepare indirect cost proposals; train their staffs; establish a process to track, document, and certify labor costs for employees spending time on both direct and indirect cost activities; and comply with Federal and NSF

requirements. In the case of the audit that was resolved this reporting period, NSF sustained all our recommendations except one concerning an organization's use of manual spreadsheets to record salary and consulting expenditures. NSF stated that automated systems are not a requirement, but did recommend that the auditee fully document the processing of its manual accounts.

Significant Deficiencies in Cost Proposal For Large Facility Project

At NSF's request, we contracted with the Defense Contract Audit Agency (DCAA) to perform an audit of a $160 million revised proposal submitted to NSF by a western university. The proposal, covering the period October 1, 2001 through September 30, 2006, was for the continued operations and research and development associated with one of NSF's large facilities dedicated to the detection of cosmic gravitational waves and the measurement of these waves for scientific research.

The audit identified a number of significant findings to be considered in negotiating a final award amount. Of $160 million in proposed costs, DCAA identified over $4 million of questioned costs related to an unallowable contingency reserve as well as unsupported advanced research and development tasks. The university proposed the contingency reserve to cover unforeseen actual expenses in excess of the cost estimates as well as costs that could not be anticipated at the time the estimate was prepared. DCAA also questioned over $900,000 of the proposed costs because the university did not provide adequate supporting documentation for advanced research and development tasks scheduled for FY 2005 and 2006.

In addition, DCAA reported that the university understated its proposed fringe benefits and indirect costs by $956,736 and $932,906 respectively, because it used rates in pricing the proposal that were lower than its most recently negotiated federal rates. In response to DCAA's findings, the university said it would charge the fringe benefits at the negotiated fringe benefit rate, but would charge indirect costs using the lower proposed indirect cost rate.

DCAA recommended that if NSF accepts the lower indirect cost rate contained in the proposal, conditions should be added that would require the university to absorb the difference between the lower proposed rate and the higher negotiated rate, in order to prevent the university from passing the additional costs on to other government awards. With regard to salary costs, DCAA recommended that NSF require the university to provide a detailed listing of students and visiting scientists funded by the award, as they become known, to ensure that other NSF awards are not also funding the proposed positions.

At the conclusion of DCAA's audit, the university did not concur with the findings and recommendations in the audit report. We have forwarded the audit report to NSF's Division of Grants and Agreements (DGA), who requested the

audit of this revised proposal. The university and NSF are working together to resolve the findings and recommendations in the audit report.

Corrective Actions
Prompted By Previous Audit Findings

NSF Oversight of Large Facility Projects Improves, But More Remains to Be Done

In our March 2001 Semiannual Report, we reported on our audit of the financial management of a large facility project. Our recommendations focused on enhancing NSF's oversight of these projects by updating existing policies and procedures and developing new ones aimed at improving project management. Last year, we released an audit report that raised additional concerns about NSF's management of large facility projects. Prompted by a Congressional request, the audit found that NSF's policies did not ensure that the projects remained within authorized funding levels, or that accurate and complete information on the total costs of major research equipment and facilities was available to decision makers.   NSF responded that it would combine corrective actions recommended by this audit with those initiated as a result of the earlier audit.

Thus far, the agency has implemented approximately half of the original recommendations, including providing guidance to staff for charging expenditures to the proper appropriations account. However, while a corrective action plan is in place and progress is being made, key actions from both of these reports remain unresolved. A major feature of NSF's corrective action plan is the development of a Facilities Management and Oversight Guide. While NSF staff have devoted substantial time to this document over the past two years, it remains in draft form. Additionally, the Guide does not fully address the audits' recommendations. We have commented to NSF that the Guide needs to contain more practical guidance for staff who do the day-to-day work, and that the Guide does not address recording and tracking the full cost of large facility projects.

NSF plans to revise the Guide in May, and formally issue it by September 30, 2003.   At that time, staff involved with large facility projects will need to be trained on the revised policies and procedures that will affect its funding, accounting, and monitoring. In the interim, NSF has begun to offer Project Management Certificate Programs through the NSF Academy, to help program officers improve their skills in managing large facility projects.

Two Universities Improve Controls Over Cost Sharing

During this reporting period NSF resolved two audits, with cost sharing findings that were previously reported in our September 2002 Semiannual Report. A northeastern university with $3.8 million in cost-sharing commitments over a 6-year period did not have adequate internal controls to manage or account for its cost-sharing obligations. It commingled cost-shared expenditures with other expenses unrelated to NSF projects and did not adequately monitor $682,497 of subrecipient cost sharing. Given the serious nature of the findings, NSF performed an on-site review of the university's corrective actions at our recommendation.

The review confirmed that the university has implemented the recommendations made in the audit report. They found that the university: 1) implemented a system to link the cost-sharing accounts with project accounts on each award, and to support cost-shared labor costs; 2) developed adequate policies and procedures to monitor subaward cost sharing; 3) revised its subcontract agreement to require the subrecipient to account for, document, report, and certify annual cost-sharing contributions to the university; and 4) implemented policies and procedures to certify cost sharing to NSF on an annual basis. At our suggestion, NSF also sent the university a letter encouraging it to strengthen its subrecipient monitoring policies by including activities such as site visits and limited scope audits of their processes for administering Federal awards.

We also reported that a Southern university was at risk of not meeting $239,805 of required cost sharing, and did not have adequate procedures to monitor $414,477 of subrecipient cost sharing, or systems to separately account for NSF cost sharing. In addition, the university did not certify its cost sharing to NSF when required. During audit resolution, NSF verified that the university met its cost-sharing obligation before expiration of the award, and had modified its accounting system to separately track NSF cost sharing. They also developed written subrecipient monitoring policies and added a clause to its standard subaward agreement that specifies subrecipient responsibilities for cost sharing. NSF determined that the university had updated its procedures to ensure compliance with cost-sharing certification requirements.

School Districts Strengthen Internal Controls

In our September 2002 Semiannual Report (pp. 22-24), we reported on two urban school districts that had deficiencies in their accounting systems for cost sharing, payroll, and participant support costs. Of $8.6 million in costs claimed by one school district, we questioned over $600,000 of participant support costs used for unauthorized purchases of technical software. Also, while the school district exceeded its cost-sharing requirement, $1.7 million of the amount claimed lacked supporting documentation. In addition, we found that the school district was not

following its own policies for reviewing and certifying its time records. During the resolution of the audit findings with NSF, the school district returned the full amount of the questioned costs. The school district also reported that it has strengthened its procedures to ensure that future award expenditures are for allowable costs as required by federal and NSF grant requirements, cost-sharing claims are verifiable from its accounting records, and payroll documentation is adequately reviewed and certified.

For the second school district, we reported that its entire required cost sharing obligation of $9.5 million was not supported and at risk of not being met before the expiration of the award. This material noncompliance occurred because the school district lacked written policies and procedures and an accounting system for accumulating and reporting cost sharing for the NSF award. For audit resolution purposes, the school district submitted revised documentation certifying that it had contributed $9.6 million in cost sharing, and provided NSF with its newly developed policies and procedures for tracking accounting and documenting its cost-sharing contributions. After reviewing the school district's supporting accounting records and source documents, NSF accepted the revised cost-sharing certification and indicated that it would perform follow-up procedures to ensure that the recommended policy changes are implemented.

Resolution of Contract Audits
Clarify Indirect Cost Questions

NSF resolved two audits of contractors during this semiannual period. An audit of a $7.2 million contract awarded to a for-profit company in support of various science and engineering outreach activities was unable to determine the allowability of over $1 million in claimed indirect costs because of unclear provisions related to indirect cost recoveries in the contract. NSF had allowed certain salary costs in its pre-award negotiations with the contractor, if the contractor agreed to distinguish between indirect and direct expense for these salaries. However, their accounting records did not clearly make this distinction.

During audit resolution, NSF decided that the contractor's claim for indirect costs on the salaries was appropriate and is negotiating final indirect cost rates with the contractor for the contract's four-year period. Once these rates and the allowable direct cost bases for each of these four years are determined, NSF will calculate the allowable indirect costs for the contract. At our recommendation, NSF also issued written guidance to its own staff that indirect cost provisions in NSF awards should be written clearly, without ambiguity, and reflect their expectations for indirect cost recovery. The guidance requires NSF awarding officials to document reasons for any final decisions on indirect cost rates and application bases that are different from recommendations by NSF cost analysts.

In our March 2002 Semiannual Report (p. 31), we reported on a contract issued to a southern consortium whose purpose is to provide facilities and personnel for support and operation of the Graduate Research Fellowship Program. Of $12.4 million in costs and fees claimed by the contractor, we questioned $313,978 in indirect costs because the contractor did not adjust its claim for indirect costs based on actual final indirect cost rates. We also reported that for four years the contractor failed to obtain required Federal audits. During audit resolution, NSF reviewed with the contractor the indirect costs that could be charged to the NSF contract. As a result, NSF required the contractor to reduce its contract billing to NSF by $57,545 for disallowed indirect costs. NSF also required the contractor to obtain required Federal audits on its current NSF contract.

Work In Progress

NSF Awards for International Programs

As described in the September 2002 Semiannual Report (p.34), we are performing audits of four foreign institutions. NSF estimates that it currently spends five to ten percent of its annual budget, or between $240 and $480 million in fiscal year 2003, on activities with a significant international scope. The vast majority of these funds go to U.S. institutions to support international activities and collaborations. NSF believes that international science and engineering collaborations are important to staying current with new global discoveries and methods. Also, many scientific tools, such as large instrumentation and facilities are made more affordable through international partnerships. Thus, NSF anticipates that the funding allocated to international scientific activities will increase.

NSF staff Altie Metcalf, Marty Rubinstein, and Asst. IG for Audit, Debbie Cureton, prepare to depart New Zealand for Anarctica.

When NSF makes awards directly to foreign institutions, the awards are at increased risk for financial problems and lack of compliance with award requirements because foreign organizations are less likely to understand U. S. grant requirements and have different accounting practices. Therefore, we initiated audits of four foreign organizations representing $46 million in total NSF awards over the past five years. The audits will evaluate the adequacy of NSF processes and controls for overseeing and monitoring awards to foreign institutions and determine whether foreign grantees are administering their awards in accordance with NSF terms and conditions. During this reporting period, we completed fieldwork at one foreign institution and expect to issue the audit in the next semiannual report. We have also initiated audits at two more institutions.

Award Administration Best Practices

In our September 2002 Semiannual Report (pp.33-34), we reported on the progress of a best practices review being conducted to assist NSF in its efforts to assess scientific progress and ensure effective financial management of its awards. During the audit fieldwork, we studied how eight Federal, state, and private grant-making organizations administer and monitor their awards, and document their management and oversight policies and practices. We expect the report to be issued in the next semiannual reporting period.

Committees of Visitors

Audit work continues on our review of NSF's Committees of Visitors (COVs) program. NSF relies on these committees of external experts to conduct evaluations and advise management on the performance of its scientific programs. The COV assessments are also used as a measure of program performance. This audit is examining how NSF evaluates and uses the COV reports currently, and whether the process for developing the reports, and their utility to management, can be improved. During this reporting period, the audit fieldwork was completed. We will issue the report in the upcoming semiannual period.

A-133 Audit Reports

80 A-133 Audit Reports Are Reviewed;
Quality Control Reviews Planned

The Single Audit Act of 1984, as amended, requires non-Federal entities expending $300,000 or more in a year in Federal awards to have a single or program-specific audit for that year. OMB Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations,* provides implementing guidance for these audits (generally referred to as A-133 audits), which are intended to provide Federal agencies with information on how award recipients manage Federal funds.

In this reporting period, we performed desk reviews on 80 A-133 audit reports with NSF expenditures totaling $676 million for fiscal years 2000 through 2002. 39 of the reports identified internal control weaknesses and/or findings of noncompliance with Federal grant requirements. The most common deficiencies related to claims for unallowable costs, inadequate cash management and lack of compliance with timely reporting of financial and program results. Additionally the auditors questioned $18,895 of NSF-funded costs and cost sharing claimed by award recipients. These reports have been forwarded to NSF's Division of Acquisition and Cost Support for audit resolution.

NSF relies on A-133 audits to meet its pre and post-award responsibilities for monitoring the more than $4 billion of awards it funds annually. Thus, the quality of these audits is important to enabling NSF to carry out its award administration and stewardship responsibilities. However, as we reported in our September 2002 Semiannual Report, recent Quality Control Reviews (QCRs) conducted by other Federal agencies have raised concerns about the quality of these audits and the pervasiveness of this problem. Therefore, consistent with OIG responsibilities under the Single Audit Act, we have identified this area as a new strategic focus of our annual audit plan. One particular concern is the quality of A-133 audit coverage that NSF awards receive, since these awards tend to be small relative to other Federal awards.

NSF has audit oversight responsibility for 18 organizations, including two universities and 13 school districts. In accordance with the draft guidelines issued by the President's Council on Integrity and Efficiency, we plan to conduct QCRs on these 18 organizations over the next five years. Thus, in the upcoming reporting period we will conduct three QCRs of the A-133 audits of institutions that receive the largest share of their Federal funding from NSF.

Our office also participates in a Federal OIG working group that is exploring the possibility of conducting QCRs of a statistically significant sample of A-133 audits, as part of a larger Federal OIG effort to assess the reliability of the A-133 audits government-wide. Over the next several months, a committee of Federal and state agencies will develop the sampling methodology, testing documents, contracting options, and training requirements. OMB has requested funding for this project in the President's FY 2004 budget.

Investigations

T he 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 programs and operations. We work in partnership with NSF, other agencies, and awardee institutions to resolve issues whenever possible. As appropriate, we 1) refer our investigations to the Department of Justice (DOJ) or other prosecutorial authorities for criminal prosecution or civil litigation, 2) recommend administrative action to NSF, or 3) recommend debarment . The following is an overview of investigative activities, including civil and criminal investigations, significant administrative cases, and focused reviews.

Civil and Criminal Investigations

Network Provider Settles False Claims Act Case for $1.4 Million

An NSF grantee agreed to pay $1.4 million to the government to settle a case that involved allegations of conflicts of interests, non-competitive procurement, and the submission of proposals to NSF that omitted material information. Our investigation confirmed the substance of the allegations and also uncovered additional wrongdoing.

The grantee was created as a non-profit organization under a 1986 NSF grant, and received over $10 million in continuous NSF funding to provide computer network services to its research and education institution (R&E) members. In 1990 the grantee sold its network infrastructure for stock that it later sold for over $20 million. These funds were referred to as its "endowment." Over the next several years the grantee built up a new network and then decided to reorganize into three entities: "*Com*," a for-profit company that received the network infrastructure and staff; "*Org*," a non-profit entity which retained the R&E institution members and continued to apply for and receive NSF funds; and "*Net*," the non-profit "parent" of *Com* and *Org*, which held stock in *Com*.

Since state law prohibited the direct transfer of the endowment to *Com*, it was allocated to *Net* as part of the reorganization. But *Net*

Dr. Jim Kroll (right), Director of Administrative Investigations, exchanges views with his counterparts from the Chinese government.

was allowed to provide $7.5 million of the endowment to a bank as collateral for a loan to *Com*. *Net* then approved *Com*'s plan for the remainder of the assets to be transferred to *Com* over several years, as payments to "subsidize" *Com* for the cost of the network service provided to *Org*'s R&E members . The subsidy was available only to members who purchased their services through *Org* from *Com*. In addition, *Org* was contractually required to procure services for its members solely from *Com*.

Although legally separate and independent, in practice *Org* and *Net* operated solely for the benefit of *Com* and were essentially corporate fictions. *Net* had no employees, and *Org*'s staff were actually employees of *Com*, who worked in *Com*'s offices performing tasks for *Org*. *Com*, *Org*, and *Net* also had significantly overlapping boards of directors. *Org*'s newly hired president raised questions about the absence of competitive procurement and the exorbitant charges *Org* was required to pay *Com* for "rent," personnel, and expenses. When he argued that *Org* should be run in the best interests of its R&E members rather than those of *Com*, he was terminated from his position. He then conveyed his concerns to the NSF OIG.

NSF grant conditions require competition in procurement and avoidance of conflicts of interests. It was alleged that the combination of overlapping boards, pervasive management control by *Com*, and the sole-source procurement contract, made it impossible for *Org* to comply with these requirements. In addition, *Org* did not disclose the facts about its reorganization to NSF as required under its grant agreements, or in its subsequent proposals. *Org*'s withholding of this information enabled it to receive grant funds it would otherwise be prohibited from receiving. Documents provided by *Com*, *Org*, and *Net* (collectively, the defendants) in response to our subpoenas substantiated all of the allegations.

We also found that the grantee violated NSF requirements concerning program income. "Program income" refers to income earned by a grantee that is directly

generated by the grant activity. NSF grant conditions require that program income be used to further the objectives of the grant project, subject to the same rules as the direct federal grant funds. We concluded that all of the funds in the endowment constituted program income.

The former president of *Org* filed a *qui tam* action under the False Claims Act (FCA) against the defendants. Qui tam actions are initially filed under seal, while the Department of Justice (DOJ) assesses the evidence and the merits of the case to decide whether DOJ will "intervene" and prosecute the case. After we apprised DOJ of the evidence gathered in our investigation, it notified the defendants that DOJ would intervene in the FCA case.

The post-reorganization proposals and other requests for payment submitted by the defendants (under the name of the original grantee) failed to disclose the conflicted and non-competitive practices under which they operated, rendering the proposals and other requests false claims under the FCA. As a result, the damages to the government for these false claims was $2.4 million.

Besides the FCA, there were two additional grounds for recovery by the government based on the defendant's possession and misuse of program income. First, because the defendants' corporate structure caused them to be intrinsically unable to expend properly the program income in the endowment, the government could recover those funds through the judicial imposition of a constructive trust. Second, the grant and endowment funds paid by *Org* and *Net* to *Com* in violation of the grant conditions could be deemed to have been illegally "converted" by *Org* and *Net*, enabling the government to recover them by bringing a conversion action.

While this case was pending, *Net* and *Org* took affirmative steps to make themselves independent, including constituting boards that did not overlap with *Com*'s, and acquiring their own office space and employees. Also during this time, Com succumbed to the bursting of the dot-com bubble and entered into bankruptcy proceedings, with the result that the $7.5 million of the endowment used to secure the bank loan to Com was lost.

Net and *Org* settled this case with DOJ by paying $1.4 million. Under the *qui tam* provisions of the FCA, *Org*'s former president received 23% of the settlement amount; and the non-profit was also required to pay the former president's attorney's fees.

Small Business Grantee Receives Two Awards for Same Work

A company submitted similar proposals that included much of the same work to both the NSF Small Business Innovation Research (SBIR) Program and to the U.S. Air Force (USAF) SBIR Program. In April 1996, the company received $75,000 from NSF and $99,962 from USAF for the overlapping Phase I awards. The company did not disclose the USAF project to NSF, and falsely certified that it had "not accepted funding for the same or overlapping work". The company subsequently

submitted Phase I Reports to NSF and USAF that included substantially the same results. Later, it applied for and received follow-on Phase II awards from both agencies that contained less overlapping material.

At our request, the NSF SBIR Program reviewed the Phase I proposals and concluded that it would not have awarded the grant if it had known about the USAF project. The Program also reviewed the Phase I final reports and concluded that there was so much overlap that it would not have funded the NSF Phase II proposal if the company had disclosed the existence of the USAF Phase I award and Phase II proposal. We also asked an outside expert to review the proposals and reports, and independently he came to the same conclusions.

Following our recommendation, the NSF SBIR Program declined to disburse the $56,578 final payment under the Phase II grant. We referred our findings to the U.S. Attorney's Office, which engaged in discussions with the company's counsel. The company agreed to a civil settlement totaling $66,578 that included forfeit of the remaining $56,578 of the Phase II grant, and payment of an additional $10,000 to the government.

Cases of Employee Fraud Prompt Universities to Strengthen Controls

Three universities that were victimized by fraud recently reported making management improvements to prevent future occurrences. In a case resolved this period, an A-133 audit report disclosed that a university grant administrator fraudulently charged approximately $235,000 to various university grant accounts. The fraud included $79,220 to Federal grant accounts, of which $3,480 was charged to an NSF grant account. The administrator pled guilty to one count of mail fraud (18 U.S.C. § 1341), and was sentenced to 18 months in prison followed by 3 years of supervised release, and ordered to pay restitution of $215,835.05. We recommended that NSF debar him for three years.

When an investigation reveals that an employee of an awardee institution has embezzled funds, we routinely ask the institution to describe what systemic actions have been implemented to minimize the likelihood of a recurrence of fraudulent activity. In response to our request for information, the university reported that sign-off procedures had been strengthened to include random reviews of the verifying vendor, signature cards, and documentation of approved check requisitions to ensure that the grant administrators followed proper procedures. The university is also in the process of implementing a new purchasing and account-payable system that will require electronic approvals from authorized individuals as well as vendor review and approval before expenditures are approved for payment.

In our September 2002 Semiannual Report (page 38), we discussed two cases of fraud by university employees. In the first case, an Assistant Director of

Administration pled guilty to submitting fraudulent travel reimbursements, and was sentenced to 3 years probation, 150 hours of community service, and ordered to pay $19,871.63 in restitution. Following our recommendation, NSF debarred the employee for 3 years. At our prompting, the university reported the following improvements to internal controls: 1) travel reimbursements are audited monthly, 2) reimbursement requests for conferences attended are verified and reviewed to ensure minimal stay, and 3) reimbursement requests from authorized delegates require the signature of the Principal Investigator.

In the second case, a Digital Image Specialist who also handled time cards for her Department fraudulently endorsed and cashed 40 payroll checks payable to temporary employees. The university terminated the employee and returned the funds to the grants. NSF debarred the employee for a period of two years. In response to our query, the university reported implementing: 1) required internal training for department payroll administrators, 2) required countersignatures by the Academic Department Manager after review and approval by the laboratory administrator or Principal Investigator, and 3) the mailing of all university W-2 forms directly to employees' homes rather than distributed internally. Additional improvements underway at the university include mandatory direct deposit of payroll, expansion of a new automated time and attendance system for departments that are heavy users of temporary employees, and new on-line processing technology implementing an automated authentication process for signature authorizations.

False Assurance Results in Suspension and Strict Certification Requirements

In our March 2002 Semiannual Report (page 49), we discussed a case in which a public university received an NSF award based on a false assurance that the proposed vertebrate animal research had been reviewed and approved by its Institutional Animal Care and Use Committee. During the course of our review, NSF suspended the current award while NSF worked with the institution to develop a Special Project Assurance for the research.

Consistent with our recommendation, the Division of Grants and Agreements imposed the following remedial actions: 1) in conjunction with each proposal involving research with vertebrate animals, the university is required to provide a statement that it has a formal mechanism for assuring compliance with relevant federal regulations, and 2) faculty and staff who are responsible for the administration and conduct of federal grants must receive appropriate training. In addition, during the life of the current awards, the institution is required to provide annual follow-up reports to NSF detailing actions it has taken in connection with NSF supported vertebrate animal research, the results of any state or federal agency inspection of its facilities, and its responses to any recommendations made in connection with those inspections.

University Violates Cost-Sharing Requirements

In our September 2002 Semiannual Report (page 43), we described a case in which it was alleged that a northeastern university committed fraud by repeatedly using Federal money as a source for cost-sharing funds under a Young Investigator grant. Such funds were not eligible as a source for matching under the requirements of the grant. We conducted an investigation into the fraud allegations and concluded that the institution did not act with fraudulent intent. A concurrent audit report confirmed our conclusion regarding the cost sharing. We referred the matter to the Cost Analysis and Audit Resolution Branch of NSF's Contracts, Policy and Oversight (CPO) Division. CPO concluded that the university should repay $53,900 to NSF. The university appealed that decision, but NSF's Division of Grants and Agreements concurred with CPO and the entire amount was sustained as an unallowable cost. The institution's Federal Cash Transaction Report for the period ending December 31, 2002 included an adjustment to the grant for the $53,900.

Administrative Investigations

Consistent with the guidance in the Office of Science and Technology Policy, we coordinated our investigative efforts on three misconduct cases with other Federal agencies. Significant cases solely within our jurisdiction are described below.

Pattern of Plagiarism Leads to Debarment Recommendation

We received a complaint that a computer scientist incorporated verbatim text from another scientist's successful proposal into his own Faculty Early Career Development (CAREER) proposal. Our analysis indicated that the proposal, submitted by an assistant professor of computer science at a Western university, not only contained some 90 lines from another PI's proposal, but also contained unattributed text from a dozen other sources. In response to our request for explanation, the subject acknowledged copying material without attribution and distinction. We therefore notified the subject's university and deferred further investigation while the university conducted its own investigation. The university's investigating committee found that the subject committed plagiarism constituting misconduct in science. The university Provost decided that the seriousness of the matter warranted termination, and placed the subject on a one-year nonrenewable contract.

After reviewing the university's investigation report and evidence, we determined that we could accept its findings and conclusions regarding the alleged plagiarism at issue in this case. However, in deciding what final actions to recommend to NSF management, our office must assess whether the misconduct was an isolated event or part of a pattern. We reviewed documents for which the subject claimed authorship and uncovered apparent plagiarism in four other NSF proposals as well

as the subject's doctoral dissertation, demonstrating a substantial pattern of plagiarism.

We recommended that NSF find the subject committed misconduct in science and send him a letter of reprimand. In addition, to protect the interests of NSF and the Federal government, we recommended that the subject be debarred for three years and excluded from serving as an NSF reviewer, advisor, or consultant for a period of five years.

NSF Support of Employee Research Should be Acknowledged

We initiated a review of NSF's Independent Research and Development (IR/D) program, in connection with an allegation that an NSF employee authored and edited publications under an IR/D agreement without acknowledging NSF support. It was alleged that the employee's publications related to the IR/D did not provide acknowledgement of NSF support, or use the employee's NSF address, or contain a disclaimer about NSF endorsement of the contents of the paper. Because NSF had no policy concerning such publications, we closed our investigation and initiated a review of the IR/D issues.

The IR/D program enables NSF employees to maintain their involvement in professional research. Permanent and temporary employees may participate in the program, and participants frequently publish research papers that describe the results of their IR/D efforts. The IR/D program provides an excellent vehicle for NSF employees to maintain their involvement in professional research. The IR/D agreement must be approved by the applicant's supervisor, and NSF's Division of Human Resource Management and reviewed for conflict-of-interest issues by the Office of General Counsel.

Julie Ostwald, an extern from Douglass College and Shanchao Wu, visiting intern from the NSFC, discuss OIG policies with Dr. Boesz.

We reviewed the publications of permanent NSF employees with IR/D plans, and found that half of these employees either provided NSF acknowledgement or identified NSF as their mailing address, while the other half used the address of another institution. We recommended that NSF develop a policy describing how permanent NSF employees should acknowledge NSF support in their IR/D-related publications, and NSF agreed. The new NSF policy covers all IRD participants and: (1) requires acknowledgment of NSF support in IR/D-related publications and provides recommended language for the acknowledgement; (2) requires the use of a disclaimer stating that the publication does not necessarily reflect the views of NSF (except when NSF has reviewed the material before publication); and (3) permits the use of the employee's NSF address for contact information.

Long Distance Phone Review Results in Investigation and Recommendations to Improve NSF's Process

A broad review was conducted of long-distance telephone calls made by NSF employees over a 9-month period in 2002 in order to evaluate NSF's practices and the potential for abuse. We examined calls charged to NSF-issued calling cards, as well as office calls, and reviewed governing policies and procedures. We concluded that the timing of the calling card calls appeared consistent with periods of employee travel on NSF business, and that the calls were appropriately related to the conduct of NSF business.

With regard to long distance calls made from NSF office telephones, we paid particular attention to records of lengthy and numerous calls to numbers outside the local commuting area, or to numbers with no apparent connection to NSF business. Our examination revealed an isolated instance in which an NSF employee made an average of 940 minutes of personal calls every month over the period of our review. These calls included long-distance calls in support of at least one of the employee's outside business activities. The employee often claimed credit hours on the same workdays when she made lengthy personal telephone calls. Despite admonitions from her supervisors that the calls were interfering with her job performance, they continued. We referred the results of our investigation to NSF for administrative resolution. In addition we issued a report to NSF recommending that procedures aimed at informing employees of appropriate telephone usage along with oversight of such use by supervisors, be strengthened.

Failed Collaborations Lead to Unnecessary Allegations of Misconduct

NSF encourages researchers to participate in collaborative efforts as a way to leverage and enhance the results produced. Previous semiannual reports have discussed contentious issues that have arisen out of failed collaborative research. Our office regularly receives research misconduct allegations arising from failed

collaborations where responsibilities and expectations were not well defined. During this period, OIG spent significant time resolving three more cases involving failed collaborative efforts.

In one poignant case, an institution initiated an inquiry into an allegation of duplicate funding and plagiarism by an employee. The allegations involved proposals funded by or submitted to NSF that described several different collaborative research efforts. The institution's inquiry determined the allegation of duplicate funding had no substance, however, it did initiate a full investigation into the allegation of plagiarism. The institutional investigation ultimately was unable to determine the original authorship of text in question and subsequently determined that the employee did not commit research misconduct.

Scientists can avoid misunderstandings with colleagues and being the focal point of research misconduct investigations if they clearly document their individual expectations regarding sample handling and storage, sharing of data and samples, intellectual property, and publication responsibility before the collaborative effort begins. We encourage awardee institutions to ensure that such agreements are developed in both inter- and intra- institutional collaborations before the collaborations are initiated.

OIG FY 2002 Performance Report

T his section describes OIG's accomplishments towards the three goals set forth in the *OIG Performance Plan for FY 2002:*

1. Increase OIG impact on NSF's effectiveness and efficiency.

2. Safeguard the integrity of NSF programs and resources.

3. Utilize OIG resources effectively and efficiently.

Overall, OIG accomplished most of its goals, many of which were aimed at improving key internal processes. The Office of Audits successfully implemented initiatives such as "team based auditing", and the development of new quality checks for documenting and reporting on audits. Team based auditing involves OIG management in decision making during critical junctures of an audit to increase its focus on issues of systemic importance. These quality improvements contributed to a successful peer review of audit operations by another Federal OIG. The Office of Investigations carried out a major revision of its policy manual, conducted a mock peer review, and wrote two articles published in professional journals. In particular, we expect the new *Investigations Manual,* which defines the criteria for a quality product and streamlines investigative procedures, to significantly impact investigative operations. In addition, Audits and Investigations collaborated to develop an effective process for referring matters that require the other's professional expertise. We note that some actions described were not fully implemented by the end of the period, including the completion of enhancements to our Knowledge Management System, and a detailed, stratified analysis of NSF's funding activities.

Under each goal, we identified several strategies for achieving the goal. For each strategy, we listed specific actions that we planned to complete during FY 2002. Since for the purpose of performance reporting we are transitioning from a fiscal year reporting period (October thru September) to one that begins April 1, our report includes a few actions that were completed during the first half of FY 2003.

Goal 1:
Increase OIG Impact on NSF's Effectiveness and Efficiency

1. **Identify and implement approaches to improve audit product quality and timeliness.**

    This strategy has 6 actions associated with its successful completion:

    • *Implement team-based auditing approach on high-risk audits.*

    • *Develop audit workpaper quality standards.*

    • *Develop audit report quality standards.*

    • *Develop audit guide for contract auditors.*

    • *Develop automated work-in-process tracking system.*

    • *Conduct a Study of Audit Report Timeliness.*

    OIG made significant progress toward accomplishing this goal. Team-based auditing calls for formal conferences between auditors and managers at key junctures during an audit, thereby facilitating improved communications that result in timelier, higher quality audit reports. During FY 2002, the Office of Audit developed policies and procedures to establish the team-based process within our office and held team-based conferences on a regular basis. Consequently OIG reports are focusing to a greater degree on identifying *systemic* issues of importance to NSF, which we believe will have greater impact. Implementation of the team-based approach for audits performed by our contract accounting firms has proved more challenging, however, and will be accomplished over the coming year.

    During FY 2002, the Office of Audit issued a more comprehensive policy on the documentation of evidence that supports the auditors' significant conclusions, judgments, findings, and opinions. The policy will improve the supervision and oversight of our audits by ensuring that a uniform and complete record is provided for each audit. The Office has also written a draft policy and checklist, based on Government Audit Standards, aimed at improving the quality of audit reports. The staff is already following many elements of the draft policy. We also initiated a comprehensive revision of our audit guide for contractor-performed audits. The guide has been updated to include all recent audit guidance related to government grants, and it has been expanded to provide for more OIG oversight and quality control over the final audit products. OIG staff will complete the guide during FY 2003.

    The OIG Knowledge Management System (KMS) is an information technology system designed to integrate and update dozens of existing "stovepipe" applications. When completed, KMS will support virtually all audit functions, including audit resolution, audit planning, project management, trend analysis, and audit performance process components. During FY 2002, we migrated audit data from existing

information systems and used KMS to prepare the data tables required in the Semiannual Report to the Congress. Future tasks include identifying system enhancements to support additional operational functions.

During FY 2002, an internal study identified a number of reasons for untimely audit reports, including the lack of familiarity of new OIG auditors with NSF awards and programs, the demanding workload of audit managers, and the uneven implementation of the team-based auditing process. To date, we have addressed four of the five recommendations, including formalizing the team-based process with a written policy and assessing whether team-based auditing is appropriate for all audit work. During FY 2003, we will focus on ensuring that the audit staff becomes more knowledgeable of NSF awards and programs.

2. **Strengthen our focus by refining approaches for selecting work and setting priorities.**

   This strategy has 5 actions associated with its successful completion:

   - *Continue to enhance audit planning processes to assess audit risk and focus on substantive agency and Federal issues by developing and formalizing an audit planning strategy.*

   - *Assign audit staff to program areas; develop agency expertise.*

   - *Conduct historic trend analysis of audit findings.*

   - *Conduct agency funding analysis by program and grantee institution.*

   - *Develop permanent files of programmatic and audit areas.*

A strong effort was made to improve our audit focus. Most significantly, OIG developed and applied, for the first time, a formal audit planning methodology. First, we identified eight broad strategic risk categories based on our knowledge of NSF's core business processes, e.g., award administration, human capital. We then assessed each category according to its inherent risk (impact if a problem occurs) and control risk (probability that a problem will occur) to develop a risk map. Finally specific audits were selected, consistent with the risk map, to be performed in the coming year. In FY 2003, we will assess the effectiveness of our new methodology before finalizing the procedures.

During FY 2002, we assigned responsibility for staying informed about specific NSF program areas to individual audit staff to improve our collective knowledge about NSF's various programs. We also contracted with an accounting firm to perform an analysis of historic audit data to identify past trends in reported compliance, internal control, and questioned-cost findings. We expect that the results of the analysis will enable us to enhance our audit planning and risk assessment processes. In addition, the contractor will recommend modifications to data fields in our KMS system, if necessary. The contractor is expected to conclude its work during FY 2003.

Two planned actions were not completed during FY 2002. We concluded a funding analysis of programs managed by the Agency's Engineering Directorate, but have not yet analyzed the remaining program directorates. In addition, we did not develop permanent files in FY 2002, because this action follows upon the completion of our agency funding analysis.

3. **Develop an OIG outreach plan to support NSF's efforts to inform the awardee community about the financial and compliance standards that matter for efficiency and effectiveness.**

   This strategy has 1 action associated with its successful completion:

   • *Completion of an Outreach Plan for efficiency and effectiveness matters.*

The Office of Audit developed a draft audit outreach plan for the activities that comprise OIG's audit-related outreach efforts. We identified three goals of audit outreach: gaining a better understanding of NSF activities and operations; monitoring audit-related changes in our OIG community; and educating NSF and the external community on audit issues. We also continued to share our expertise and experience with NSF and their awardees. We were invited to discuss our work and give outreach presentations at a number of institutions and events outside NSF, including Cal State University, Experimental Program to Stimulate Competitive Research (EPSCOR) workshop, NSF Regional Grants Conference, ATE Workshop, TCUP/HBCU Grant Management Workshop, the National Council of University Research Administrators Conference, and the Committee on Government Relations Conference.

Goal 2:
Safeguard the Integrity of NSF Programs and Resources

1. **Identify ways to improve investigative product quality and timeliness.**

   This strategy has 5 actions associated with its successful completion:

   • *Ensure consistency of investigative reports within each of the Investigative sections.*

   • *Define the minimal contents and structure of an Administrative or Civil/Criminal Investigative Report.*

   • *Complete rewriting the Investigative Manual.*

   • *Implement Milestones and develop target timelines.*

   • *Define quality product.*

To prepare for undergoing its first-ever peer review, the Office of Investigations reviewed all investigative processes to ensure that they meet the standards articulated in the *Quality Standards for Investigations* issued by the President's Council for Integrity

and Excellence (PCIE) and the Executive Council of Integrity and Excellence (ECIE). Although the PCIE/ECIE did not finalize the Peer Review Guide by the end of the fiscal year, we implemented many of the prescribed actions and strengthened the processes that assure quality and timeliness.

Many actions were carried out in conjunction with rewriting the Office's *Investigations Manual*, which clearly defines the criteria for a quality product and streamlines investigative procedures. For example, in order to simplify case processing and ensure consistency and quality, it eliminates the separate procedures used for Administrative and Civil/Criminal cases. The new manual also outlines the minimum requirements and model structure for Management Implication Reports, Administrative and Civil/Criminal reports, and case closeouts.

The process of review and approval of investigative closeouts and reports includes investigative, legal and administrative considerations, thereby ensuring that OIG only recommends actions consistent with previously resolved cases. As a check on the timeliness of the process, the milestones used in administrative investigations are now being applied in civil/criminal and preliminary cases, and are an integral feature of the new Knowledge Management System.

The Office of Investigations conducted a mock peer review using three staff members as the peer review team. The team was charged with determining the office's compliance with the finalized Peer Review Guide. To make that determination, the team spent approximately four days conducting an entrance conference, reviewing files and supporting documentation, performing interviews, and conducting an exit conference. This was useful both as a test of our office's procedures and operations and as a training tool for investigative staff.

2. Enhance outreach effectiveness.

This strategy has 5 actions associated with it:

- *Revise the Outreach Plan to incorporate the plan of the audit office.*

- *Develop a Civil/Criminal Investigations companion brochure.*

- *Monitor and assess the effectiveness of outreach on case processing time, priorities, and allegation assessment.*

- *Participate in NSF New Employee orientation.*

- *Revise Program Management Seminar materials.*

The Inspector General Act of 1978 identifies preventing fraud and abuse as one of the key roles of Inspectors General. Consistent with this mandate, our office has identified outreach efforts to help educate the community as an important preventative activity. During the fiscal year, we revised our Outreach Plan to include a component for our Office of Audits and to emphasize contact with broader audiences to increase the efficiency of our outreach efforts.

The Office of Investigations developed two new themes for presentations at conferences: managing compliance programs, and managing principal investigator (researcher) and institutional conflicts of interest. The effectiveness of outreach presentations is measured by feedback received on evaluation forms and by repeat invitations to an event. We reached several hundred people during presentations to external organizations during this period, and the evaluations showed that our presentations were well received.

Information provided on the OIG website and the distribution of a variety of OIG brochures extended our reach to those who cannot attend presentations. The Office of Investigations developed a brochure on Civil/Criminal investigations, revamped the existing handout on Research Misconduct, and developed two new brochures: *When must you report allegations to NSF's Office of Inspector General,* and *Conflict of Interest Considerations.* The office also wrote two articles that were published in professional journals: one explored the topic of conflicts of interest, and the other discussed the relation of research misconduct to fraud.

During FY 2002, we ensured that new NSF employees were provided with materials and brochures about OIG during the New Employee Orientation. We also had representatives speak at each of the five NSF Program Management Seminars for new program managers. We updated the Program Management Seminar binder twice to ensure that it reflected current information on OIG, and we revised the outreach plan to incorporate Audit participation in Program Management Seminars

We also reached NSF staff by giving presentations at the mandatory Conflict of Interest briefings, of which there are more than 20 each year.

Goal 3:
Utilize OIG Resources Effectively and Efficiently

1. **Enhance communication and collaboration between audit and investigations.**

   This strategy has 5 actions associated with its successful completion:

   - *Share information about audit and investigative activities at all-staff meetings.*

   - *Award and administer contract for the provision of audit services in support of investigative activities.*

   - *Provide opportunities for cross-cutting training for auditors, investigators, and other OIG staff.*

   - *Implement Grant Fraud Indicators pilot program.*

   - *Provide timely information exchange and referrals between the audit and investigation units.*

Communications and contacts between auditors and investigators within OIG increased over the past year as the offices worked to improve communication and understanding where their respective responsibilities converge. During FY 2002, the two offices briefed OIG staff on a regular basis about audit, investigative and outreach activities at monthly staff meetings. At the request of investigations staff, auditors gave a presentation to an interagency grant fraud working group on the OMB Circulars and the relationship between non-compliance and fraud. In FY 2002, a contract was awarded to an accounting firm to provide audit services in support of investigative activities. The assistance of audit staff in crafting the contract and working with the audit contractor has been essential to several important investigations. Investigations staff were required to obtain professionally recognized training in the area of financial accounting and auditing. Similarly, auditors were encouraged to attend classes that would broaden their knowledge and skills outside their discipline.

Audit and Investigations also worked together during FY 2002 to implement a Grant Fraud Indicators pilot program. With the participation of both Audit and Investigations staff, investigators developed a handbook to help identify potential indications of fraud that may arise during audits of NSF awards and programs. Auditors have begun to use the handbook in planning their audits and for guidance during their fieldwork. During FY 2003, the Office of Audit will ensure that its audit support contractors are also alert to the indicators described in the handbook.

The two offices collaborated to develop the fundamentals of a timely and efficient referral process. They implemented a monthly managers' meeting to facilitate exchanges of information and planning relative to referrals and other matters of common interest. With the help of audit staff, Investigations developed an audit referral form and added procedures for making referrals to Audit in the Investigations Manual. Investigators referred several cases to Audit that raised accounting and internal control issues, and auditors provided informal guidance in investigative cases requiring audit expertise. Matters raising possible fraud and other investigatory issues were also referred from Audit to Investigations. The Office of Audit began to develop formal policies and procedures for referrals to Investigations.

2.   Better utilize professional expertise and talents of all OIG staff.

This strategy has 6 actions associated with it:

- *Conduct survey of OIG staff to obtain their views on the effectiveness of (1) OIG use of its resources in personnel, equipment, technology and contracting, (2) management planning, policies, and procedures, (3) internal cooperation and communications, and (4) OIG impact on NSF.*

- *Analyze survey results and develop corrective actions for the problems identified.*

- *Increase the use of the team approach in OIG activities.*

- *Develop an integrated MIS within the OIG.*

- *Develop OIG policies and procedures as needed.*

- *Ensure that all appropriate OIG activities and experiences are shared at all-staff meetings.*

At the end of the fiscal year, we conducted a survey of OIG employees to obtain their views on the effectiveness of (1) OIG use of its resources, (2) management planning, policies, and procedures, (3) internal cooperation and communications, and (4) OIG impact on NSF. Seventy-six percent of OIG employees submitted responses, and a staff committee analyzed the survey results. They showed that employees believed they had a good understanding of the OIG mission and goals, adequate training for individual growth and development, and sufficient computer resources and support. OIG staff also felt that harassment was not tolerated in the office, OIG worked well with its governing bodies (the National Science Board and the Congress), and individual performance was evaluated fairly in OIG. In terms of performance and impact, OIG staff believed that the subjects of OIG audits and investigations were treated equitably, OIG work units followed appropriate standards, OIG staff were qualified to do their jobs and practiced the highest ethical standards, and OIG produced high quality work. They felt that OIG outreach efforts were important to our mission and that the OIG environment supported a balance between work and personal life.

The survey also pointed out several areas needing attention. Most significant was the need to improve coordination and communications between the audit and investigative units. The management review process for clearing reports and the utilization of contractors by OIG were two other areas identified as in need of improvement. Finally, OIG staff questioned whether OIG management had struck the appropriate balance between asking for timeliness and meeting high quality standards on reports. We have resolved to take concrete steps to address these issues in FY 2003.

We made use of the team approach for several OIG activities, including the planning of the annual office retreat, development of a pilot office assignment policy, and evaluation of the employee survey results. As indicated above, we explored ways to improve collaboration among staff members, including wider use of the team approach. In FY 2002, we made significant progress in implementing an integrated management information system, which was used effectively by the investigations unit. The development of the system is ongoing, and full utilization by the auditing and administrative staffs will be completed in FY 2003. We issued final OIG policies on telecommuting, public release of OIG reports, and special recognition awards, and we developed pilot procedures for office assignments. Each month we held all-staff meetings to share information about OIG administrative matters, update staff on audit and investigative activities, conduct training, and hear outside speakers, primarily senior NSF managers describing their program operations and issues.

3. **Address recruiting and retention issues.**

   This strategy has 5 actions associated with it:

   - *Use survey results and other information to analyze OIG skill mix and determine whether it will meet the priority needs of the office in the future.*

   - *Focus recruiting efforts on correcting any skill deficiencies identified.*

   - *Assess the adequacy of existing NSF personnel services to the OIG and take steps to correct any problems.*

   - *Develop a system for tracking retention rates, turnover, and length of service.*

   - *Evaluate the use of telecommuting in OIG.*

   We targeted our hiring based on an assessment of OIG's priority needs, adding five new FTE and filling behind departing staff in financial auditing, contract oversight, performance auditing, criminal investigations, administrative investigations, and outreach. We restored our criminal investigations unit to full strength and added staff to the financial audit unit. When two audit support employees departed, we consolidated their primary functions into a single position, freeing up a slot for other needs. On a pilot basis, we established a two-person staff in Denver, Colorado, to address auditing needs in the western region more effectively. We developed a Federal Career Intern program in OIG that will be used for recruiting in FY 2003.

   OIG worked with NSF's Human Resource Management staff on improving the agency's new E-Recruit system for processing our job applicants electronically, and we discussed ways in which OIG may take on more responsibility for handling its personnel tasks. Based on our assessment of our personnel needs and the over-extended NSF human resource staff, we determined that we need to strengthen our administrative unit in FY 2003 by hiring a specialist responsible for developing an integrated personnel management system that includes core competencies, individual development plans, updated position descriptions, and a personnel retention tracking process. We did not achieve our planned action of developing a system for tracking retention rates, turnover, and length of service during FY 2002, but we intend to do so in FY 2003 as a new function in our knowledge management system. To enhance both recruiting and retention, we established a telecommuting option for all employees, and seven employees (13 percent) were approved for participation in the program.

4. **Strengthen effectiveness of and investment in staff development and training.**

   This strategy has 4 actions associated with it:

   - *Develop an office-wide process for individual development plans.*

- *Provide OIG training in NSF programs and procedures, professional skills, and other subjects that have wide application within the office.*

- *Ensure that the requirements of the existing training policy are met by all OIG staff.*

- *Identify core competencies for staff by grade level/position.*

Groundwork was laid for establishing an individual development plan (IDP) process in OIG in April 2003, to coincide with the annual performance rating period for all staff. We examined various IDP programs from both the public and private sectors, and senior management will decide on the final format and procedures prior to its introduction in FY 2003.

OIG aggressively promoted training during FY 2002, and the staff survey reflected strong employee satisfaction with the opportunities for individual growth and development. We conducted monthly all-staff meetings that brought in senior officials from NSF directorates to discuss their operations and concerns, and the annual OIG Retreat focused both on teambuilding and on individual Myers Briggs indicators. The office arranged for special training programs for the staff in audit and investigative techniques, and all except new employees met the OIG requirement to complete at least 24 hours of training directly related to their work each year. We were not successful in establishing staff core competencies during FY 2002, but we completed early developmental work by gathering information on core competencies used in other agencies and making plans to discuss the process with contractors who will be providing similar services to NSF.

Finally, as further evidence of the effectiveness of OIG's investment in staff development and training, OIG received three key quality control certifications. The United States Postal Service OIG conducted a quality control review of our audit operations and found that our quality control system provides reasonable assurance that our audits are conducted in conformance with auditing standards. Also, under Federal law, the head of each agency is required to ensure that Federal employees are informed of their rights regarding the Whistleblower Protection Act (WPA) and prohibited personnel practices (PPP). The Office of Special Counsel (OSC) has created a certification program under which it will certify that an agency is in compliance with this law. NSF OIG has successfully completed each of these steps and received OSC certification. And in February, we submitted a certification and accreditation package to the CIO, prepared in accordance with NSF IT security policies and guidance from the National Institute of Standards and Technology (NIST), that was the basis for the IG to certify that the OIG server substantially meets all applicable Federal policies, regulations and standards.

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	$443,103
B. Recommendations that were issued during the reporting period	$4,159,513
C. Adjustments related to prior recommendations	$0
Subtotal of A+B+C	$4,603,616
D. For which a management decision was made during the reporting period	$4,517,416
i) Dollar value of management decisions that were consistent with OIG recommendations	$444,103
ii) Dollar value of recommendations that were not agreed to by management	$4,073,313
E. For which no management decision had been made by the end of the reporting period	$86,200
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	10	$1,183,111	$17,805
B. That were issued during the reporting period	9	$343,866	$74,235
C. Adjustments related to prior recommendations		$9,147	$0
Subtotal of A+B+C	19	$1,536,124	$92,040
D. For which a management decision was made during the reporting period:	11	$1,201,356	$17,805
1. Dollar value of disallowed costs	N/A	$851,014	N/A
2. Dollar value of costs not disallowed	N/A	$350,342	N/A
E. For which no management decision had been made by the end of the reporting period	7	$334,768	$74,235
For which no management decision was made within 6 months of issuance		$0	$0

Audit Reports Involving Cost-Sharing Shortfalls

	Number of Reports	Cost-Sharing Promised	At Risk of Cost Sharing Shortfall (Ongoing	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:	2	$12,414,037	$9,720,295	$0
B. Reports with monetary findings that were issued during the reporting period:	2	$91,947	$0	$63,797
C. Adjustments related to prior recommendations		$0	$0	$0
Total of Reports with Cost Sharing Findings (A+B+C)	4	$12,505,984	$9,720,295	$63,797
D. For which a management decision was made during the reporting period:	3	$12,414,037	$9,720,295	$8,948
1. Dollar value of cost-sharing shortfall that grantee agreed to provide	N/A	N/A	$0	$8,948
2. Dollar value of cost-sharing shortfall that management waived[3]	N/A	N/A	$9,720,295	$0
E. Reports with monetary findings for which no management decision has been made by the end of the reporting period	1	$91,947	$0	$54,849

[3] Indicates the dollar value waived by management or that the grantee provided additional documentation during audit resolution to support the at-risk amounts.

Status of Internal NSF Recommendations

Open Recommendations (as of 9/30/02)

Recommendations Open at the Beginning of the Reporting Period	81
New Recommendations Made During Reporting Period	6
Total Recommendations to be Addressed	87

Management Resolution of Recommendations[4]

Awaiting Resolution	38
Resolved Consistent With OIG Recommendations	49

Management Decision That No Action is Required   0

Final Action on OIG Recommendations[5]

Final Action Completed	38
Recommendations Open at End of Period	49

Aging of Open Recommendations

Awaiting Management Resolution:

0 through 6 months	30
7 through 12 months	8
More than 12 months	0

Awaiting Final Action After Resolution:

0 through 6 months	3
7 through 12 months	3
more than 12 months	5

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[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
03-1-001	Non-profit association	$0	$0	$86,200	$0
03-1-002	College	$212,762	$74,235	$0	$0
03-1-003	Non-profit laboratory	$0	$0	$0	$0
03-1-004	Non-profit association	$58,906	$0	$0	$0
03-1-005	University system	$0	$0	$0	$0
03-1-006	Non-profit history museum	$53,303	$0	$0	$0
03-2-001	NSF internal review	$0	$0	$0	$0
03-2-002	NSF internal review	$0	$0	$0	$0
03-2-003	NSF internal review	$0	$0	$0	$0
03-2-004	NSF internal review	$0	$0	$0	$0
03-2-005	NSF internal review	$0	$0	$0	$0
03-2-006	NSF internal review	$0	$0	$0	$0
03-2-007	NSF internal review	$0	$0	$0	$0
03-2-008	NSF internal review	$0	$0	$0	$0
03-6-001	University (proposal review)	$0	$0	$4,073,313	$0
	Total:	$324,971	$74,235	$4,159,513	$0

NSF-Cognizant Reports

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
03-4-001	School district	$0	$0	$0
03-4-002	Non-profit organization	$0	$0	$0
03-4-003	Museum	$0	$0	$0
03-4-004	Non-profit research station	$0	$0	$0
03-4-005	Non-profit science institution	$0	$0	$0
03-4-006	School district	$0	$0	$0
03-4-007	School district	$0	$0	$0
03-4-008	School district	$0	$0	$0
03-4-009	Non-profit research corporation	$0	$0	$0
03-4-010	School district	$0	$0	$0
03-4-011	Research foundation	$0	$0	$0
03-4-012	School district	$0	$0	$0
03-4-013	Educational council	$0	$0	$0
03-4-014	Non-profit institute	$0	$0	$0
	Total:	$0	$0	$0

Other Federal Audits

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
03-5-025	State education department	$541		
03-5-031	College	$150		
03-5-034	University	$1,617		
03-5-039	University	$8,948		
03-5-042	University	$3,480		
03-5-063	University	$4,159		
	Total:	$18,895	$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 were no reports 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 56.

Investigations Case Activity

October 1, 2002 - March 31, 2003

	Preliminary	Civil/Criminal	Administrative	Total
Active Cases at Beginning of Period	21	25	21	67
Opened Cases	72	21	25	118
Closed Cases	79	18	15	112
Active Cases at End of Period	14	28	31	73

Investigations Case Statistics

Referrals to DOJ	2
Criminal Convictions/Pleas	0
Civil Settlements	2
Administrative Actions	3
Investigative Recoveries[6]	$1,524,127
Research Misconduct Findings by NSF	0
Cases Forwarded to NSF Management for Action	3
Cases Forwarded to NSF Management in Prior Periods Awaiting Action	0
Assurances and Certifications[7]	
Number of Cases Requiring Assurances During This Period	4
Number of Cases Requiring Certifications During This Period	6
Assurances Received During This Period	1
Certifications Received During This Period	1
Number of Debarments in Effect During This Period	3

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[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 8 FOIA requests compared to 16 in the last reporting period. The response rate ranged between 11 days and 20 days, with a median of 17 days and the average around 15 days.

- We received one Privacy Act request, which was denied. No Privacy Act requests were 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 Office of General Counsel (OGC). One individual appealed to the OGC; that appeal was also denied.

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, 51)

- Matters referred to prosecutors, and the resulting prosecutions and convictions. (See p.31, 61)

- Revisions to significant management decisions on previously reported recommendations, and significant recommendations for which NSF has not completed its response. (See p. 25, 56, 59)

- Legislation and regulations that may affect the efficiency or integrity of NSF's programs. (See p. 11)

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

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

Acronyms

ATE	Advanced Technological Education Program
CIO	Chief Information Officer
COI	Conflict of Interest
CPO	Division of Contracts, Policy and Oversight
COV	Committee of Visitors
DACS	Division of Acquisition and Cost Support
DCAA	Defense Contract Audit Agency
DD	Division Director
DFE	Designated Federal Entity
DGA	Division of Grants and Agreements
DOJ	Department of Justice
ECIE	Executive Council of Integrity and Efficiency
FCA	False Claims Act
FOIA	Freedom of Information Act
FTE	Full Time Equivalent Staff
FY	Fiscal Year
GISRA	Government Information Security Act
GPRA	Government Performance and Results Act
HBCU	Historically Black Colleges and Universities
HUD	Department of Housing and Urban Development
IDP	Individual Development Program
IR/D	Independent Research and Development
KMS	Knowledge Management System
MRE	Major Research Equipment
MREFC	Major Research Equipment and Facilities Construction
NIST	National Institute of Standards and Technology
NSB	National Science Board
NSF	National Science Foundation
NSFC	National Natural Science Foundation of China
OIG	Office of Inspector General
OMB	Office of Management and Budget
OPP	Office of Polar Programs
OSC	Office of Special Counsel
OSTP	Office of Science and Technology Policy
PCIE	President's Council on Integrity and Efficiency
PI	Principal Investigator
PFCRA	Program Fraud Civil Remedies Act

Acronyms (cont'd)

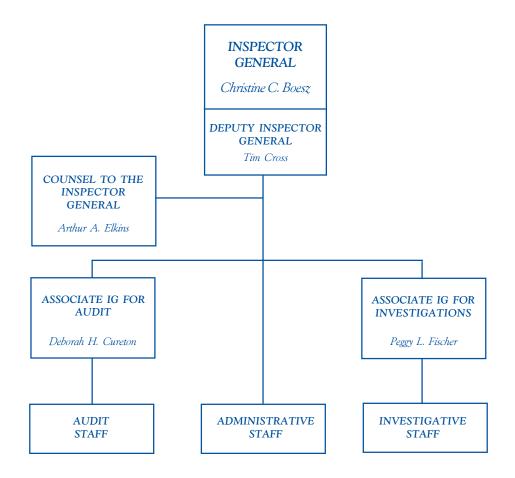|	
QCR	Quality Control Review
SBIR	Small Business Innovation Research
SRA	Society of Research Administrators
TCUP	Tribal Colleges and Universities Program
USAP	United States Antarctic Program
USI	Urban Systemic Initiative
USP	Urban Systemic Program
USPS	United States Postal Service
VA	Veterans Administration
WPA	Whistleblowers Protection Act

Awards

Pictured receiving OIG Awards during the past 6 months are
James Caras (top), Chris Gordon and Peggy Gartner (center) of
NSF's Division of Administrative Services, and Gloria VanKan of OIG.

Organization Chart

INSPECTOR GENERAL

Christine C. Boesz

DEPUTY INSPECTOR GENERAL

Tim Cross

COUNSEL TO THE INSPECTOR GENERAL

Arthur A. Elkins

ASSOCIATE IG FOR AUDIT

Deborah H. Cureton

ASSOCIATE IG FOR INVESTIGATIONS

Peggy L. Fischer

AUDIT STAFF

ADMINISTRATIVE STAFF

INVESTIGATIVE STAFF