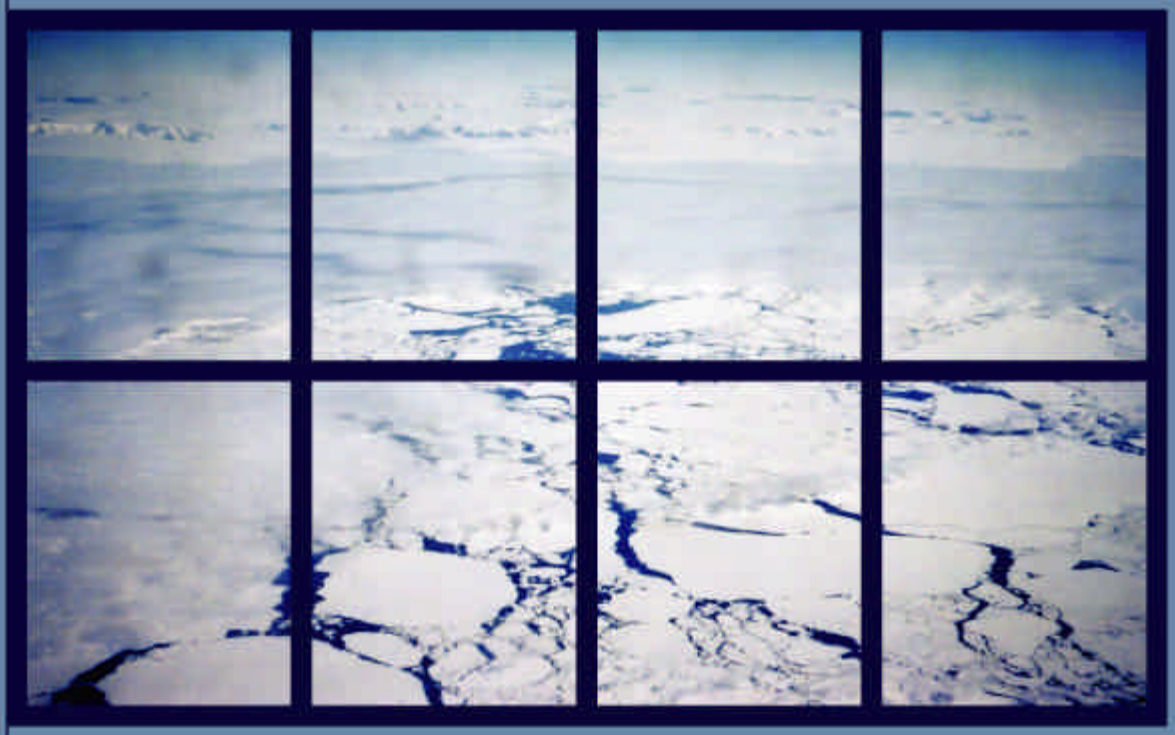
Semiannual Report to the Congress

March 2001



National Science Foundation

Office of Inspector General

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Front cover photograph:	Breaking up of annual sea ice in the Ross Sea, Antarctica
Back cover photograph:	Ceremonial South Pole
Credit:	Dr. Christine C. Boesz Inspector General National Science Foundation

The March 2001 Semiannual Report (24) to the U.S. Congress cover was designed by Gloria vanKan. She is the personal secretary/assistant to the Inspector General and the OIG Liaison to the President's Council on Integrity and Efficiency/ Executive Council on Integrity and Efficiency.

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From the Inspector General

This semiannual report highlights the activities and accomplishments of the National Science Foundation (NSF) Office of Inspector General (OIG) for the six-month period ending March 31, 2001. We issued 14 audit reports and reviews and closed 62 investigations. During this period NSF continued the celebration of its 50th anniversary as the only federal agency exclusively devoted to promoting basic research and education at all levels and across all fields of science and engineering. NSF supports education and research through grants, contracts, and cooperative agreements to about 1,800 universities, colleges, local K-12 schools, small businesses and other research organizations throughout the United States.

NSF annually receives about 30,000 proposals for educational and research projects; it funds approximately one-third of them. In addition, NSF supports research in the Arctic and the Antarctic, national research centers, and state-of-the-art research facilities and instrumentation. NSF does not conduct research or operate laboratories. It seeks out and funds the best ideas, pursuing new knowledge and discoveries.

In this context, the OIG works collaboratively and constructively with NSF staff to identify issues that may affect NSF's success in administering its programs. During this period, we worked with NSF management to ensure full understanding of the top management challenges. We focused attention on outreach activities, including an "OIG Open House" which was designed to educate NSF staff about our respective roles in preventing fraud, waste, and abuse and in handling misconduct in science allegations. We held seminars at several colleges and universities to educate young researchers on compliance requirements, conflict-of-interest policies, and terms and conditions of grant awards.

Our audit work continued to identify institutional weaknesses in documenting or providing cost-sharing contributions, in internal control systems, and in general oversight of NSF awards. We also identified areas to improve in the management of the construction and commissioning of large research facilities. Such projects have challenges that push the limits of technology and often involve complex international funding arrangements.

We also conduct civil, criminal, and administrative investigations. Our administrative investigations focus primarily on allegations of misconduct in research. We continue to receive more allegations of plagiarism than any other type of offense. While the root causes in these cases are not always clear, we are concerned that our office is seeing the effect of competing demands placed on the research enterprise. Because of these tensions, we are focusing outreach activities on integrity, conflicts of interest, and accountability issues. We are also leading the IG community in its efforts to better understand the role an OIG may play in investigating misconduct in research at their respective agencies.

The OIG appreciates the cooperation, support and responsiveness of the National Science Board, the Director, the Deputy Director, the Assistant Directors, the Chief Financial Officer, the Chief Information Officer, and others in NSF. We are committed to assisting NSF as it addresses its management challenges. We look forward to providing objective information and views that will be useful in helping NSF move toward its vision: Enabling the Nation's future through discovery, learning, and innovation.

Christine C. Boesz, Dr.P.H.
Inspector General
March 31, 2001

Mission

We conduct independent and objective audits, investigations, and other reviews to support NSF in its mission by promoting the economy, efficiency, effectiveness, and the integrity of NSF programs and operations.

Vision

We will use our diverse and talented staff and cutting edge technology to have a beneficial effect on NSF and the communities it supports. We will help prevent problems, address existing issues in a timely and proportionate manner, and keep abreast of emerging challenges and opportunities.

Values

Professionalism

To follow accepted technical and ethical standards of our disciplines; do our work fairly and thoroughly; represent our results accurately, objectively, and with a sense of proportion; and complete our work within a reasonable time so that it is available for relevant decisions.

Accountability

To take responsibility for the quality of the work we do and treat similar matters consistently.

Flexibility

To think creatively, adopt new ways of addressing issues tailored to unique circumstances, and build on successful processes to make them better.

Teamwork

To be respectful of others, seek common ground with them as we do our work, and be honest, trustworthy, and straightforward. To be cooperative without compromising our independence.

Contents

Audits & Reviews

We are responsible for auditing grants, contracts, and cooperative agreements funded by NSF, and for reviewing agency operations to ensure that they are conducted effectively and efficiently. Many factors are used to determine what to audit or review, including requests by National Science Board members, key NSF decision-makers, and other government officials. The OIG audit plan also considers NSF strategic goals and management challenges, award recipients' prior experience in managing federal awards, and priorities set by the OIG.

Our financial and compliance audits determine:

1) whether costs claimed by award recipients are allowable, reasonable, and allocated to the proper award, and

2) if awardees had adequate procedures and controls to ensure compliance with federal laws and regulations, NSF requirements, and the terms and conditions of the award.

Our performance audits and reviews evaluate the effectiveness and the efficiency of the administrative and programmatic aspects of NSF and awardee operations. In addition, by law we conduct the annual audit of NSF's fiscal year financial statements, including evaluations of internal controls and data processing systems. We also submit annually to Congress a list of NSF's major management challenges.

HIGHLIGHTS

Reporting Requirements

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

1, 43	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).
25, 54	Matters referred to prosecutors, and the resulting prosecution and convictions.
48, 52	Revisions to significant management decisions on previously reported recommendations, and significant recommendations for which NSF has not completed its response.
none to report	Legislation and regulations that may affect the efficiency or integrity of NSF's programs.
none to report	OIG disagreement with any significant decision by NSF management.
none to report	Any matter in which the agency unreasonably refused to provide us with information or assistance.

AUDIT RELATED REPORTING TERMS

Much of the terminology that we use in describing issues discovered in our audits and reviews is complex. Some of the more common terms and definitions that we use are:

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. It is important to note that NSF is responsible for making a ***management decision*** regarding questioned costs that includes an evaluation of the findings and recommendations included in the audit report. It is the management decision that may transform a questioned cost into a disallowed cost.

Funds Put to Better Use.

Many times audit recommendations identify ways to improve the efficiency of programs that can lead to tangible cost savings over the life of an award. These are not questioned costs, but rather methods of making the most efficient use of federal dollars, such as reducing outlays, deobligating funds, or avoiding unnecessary expenditures.

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.

Chief Financial Officer's Audit & Review of NSF Information Systems

NSF Receives its Third Consecutive Unqualified Audit Opinion On Financial Statements

In accordance with the Chief Financial Officers (CFO) and Government Management Reform Acts, we completed an audit of NSF's financial statements for FY 2000. The agency received its third consecutive unqualified opinion on its financial statements, which include the balance sheet and the related statements of net cost, changes in net position, budgetary resources, and financing. The audit determined that the statements were presented fairly, and in all material respects, in conformity with generally accepted accounting principles.

The audit included a report on internal control over financial reporting that did not identify any significant internal control deficiencies adversely affecting NSF's ability to record, process, summarize and report financial data. This marks the first time that no significant internal control deficiencies were reported for NSF's financial reporting activities. The FY 2000 review of internal controls included a comprehensive evaluation of NSF's electronic data processing system controls and tested the vulnerability of NSF's systems to penetration by unauthorized persons both external and internal to NSF. The review also evaluated the controls over three major computer applications.

The audit identified and reported one instance of potential noncompliance with federal appropriations law. The reportable noncompliance occurred when NSF expended funds from its Research and Related Activities (R & RA) appropriations to supplement potential shortfalls in its Major Research Equipment appropriations for a large infrastructure project. This potential noncompliance with law was initially disclosed in an OIG audit and is discussed further on page 6.

In the next semiannual reporting period, we will issue our FY 2000 management letter, which addresses other matters involving NSF internal controls over financial reporting and award management.

Management Challenges

For the fourth year, Congress has requested that each Inspector General submit an annual list of the top ten management challenges facing his or her agency. Responding to this request has become an integral part of our strategic planning process. After careful consideration, we submitted to Congress the following challenges that we deemed most crucial to the future success of the agency.

Management of Large Infrastructure Projects: NSF spends approximately $1 billion a year in the aggregate for cutting-edge research facilities and equipment projects, some of which cost hundreds of millions of dollars. Successful management of these projects and programs requires a more disciplined project management approach.

Cost Sharing: Significant problems persist with award recipients not meeting their cost- sharing requirements. Because of the importance of these contributions to the research community, and the detrimental impact a shortfall can have on a project, we consider improvements in administering cost sharing to be among the most important priorities for NSF management.

Management of U.S. Antarctic Program: Charged with managing all U.S. activities in the Antarctic as a single program, NSF's Office of Polar Programs (OPP) funds research and provides the infrastructure and logistics necessary to conduct scientific experiments. OPP staff must not only have scientific knowledge, but must also be able to oversee and monitor the performance of contractors engaged in delivering a broad range of services to the American scientific community in the harsh polar environment.

Award Administration: NSF is challenged to monitor its awards adequately, in terms of scientific accomplishments and compliance with award agreements and federal regulations. The agency needs to establish more coordinated oversight between its program officers and its grant and contract officers to ensure better sharing of information and more effective award administration.

Merit Review: NSF must continue to ensure that reviewers correctly apply NSF's review criteria, that the merit review process gives due consideration to ideas, individuals, and institutions which have not received past support, and that the process is effectively administered.

Data Security: Next year NSF will depend on its automated computer systems to manage over $4 billion in funds and to process over 35,000 grant proposals. Therefore, it is imperative that NSF's systems are developed and operated with appropriate security controls to reduce the ever increasing risk of unauthorized access that could compromise data integrity, confidentiality, and/or availability.

FastLane: FastLane facilitates administrative transactions with the research community via the Internet. The development and implementation of FastLane, which began in 1994, has moved the agency closer to the goal of establishing a widely accessible paperless proposal and award process. However, since FastLane serves as the primary interface between NSF and its award recipients and is critical to many of NSF's administrative plans and goals, management must continue to monitor its progress to ensure that the system is user-friendly and reliable.

Government Performance Results Act (GPRA) Data Quality: A recent GAO study listed as a key weakness of NSF's FY 2000 Performance Plan that it, "provides limited confidence in the validation and verification of data". To address this criticism the agency has contracted with a public accounting firm to assist in validating the performance data it reports. We believe that NSF should follow-up on its search for ways to ensure data quality.

Work Force Planning and Training: Although NSF has had significant increases in its program responsibilities and budgets in recent years, salaries and expenses have remained relatively flat. Concerns about the adequacy of staffing come at a time when the government as a whole is facing succession planning and recruiting problems. In addition, NSF's reliance on personnel who serve under a term appointment poses a challenge to the agency to ensure that such staff is adequately trained to administer awards.

Fostering a Diverse Scientific Workforce: NSF's most recent performance plan promises that the agency will begin implementing new strategies to increase diversity. However, because such programs are difficult to implement, NSF needs to define its diversity strategies clearly and develop concrete steps to implement them.

During this semiannual period we are featuring reports that address issues related to the first four of these NSF challenges.

Large Infrastructure Project Management

NSF Needs Improved Management over Large Facility Projects

As one of NSF's large infrastructure projects was nearing completion and entering its operations phase, we performed an audit to determine whether the project was being constructed on time and on budget, and whether partner contributions would provide sufficient cash to fund operations for the next five years. We found that this facility plans to spend at least $52.8 million more than its approved construction budget and is using funds from its operations budget to cover these costs. This practice has resulted in misstating both the operations and construction costs and is potentially a violation of federal appropriations law. The problem occurred because NSF does not have adequate policies and procedures in place to address the complex problems involved in overseeing and administering large infrastructure awards.

In addition, we found that NSF has funded $6.2 million more than its required financial commitment and thereby has exceeded the 50 percent funding cap intended by Congress. This occurred because some of the partners have been unable to pay either on time or at all toward operations. Further $3.7 million of foreign contributions have been held in reserve against future shortfalls, rather than being released to the

project and used to offset the NSF advances of $6.2 million. There is also a high risk that some partners will continue to be unable to meet their funding commitments and that NSF's funding levels will remain above the 50 percent cap.

We recommended that NSF update and develop as necessary its policies and procedures to assist its managers in administering large capital projects, such as those funded from the Major Research Equipment appropriation account. Further, we made recommendations intended to ensure that the National Science Board and NSF senior management provide more oversight for large capital and infrastructure projects. We also recommended that NSF release to the project the $3.7 million in foreign contributions that are being held in reserve, and that it reevaluate its own level of contributions to the project in light of its 50 percent spending cap. NSF is a member of the governing board that provides oversight and supervisory direction to the research facility. We recommended that NSF encourage the facility's board to reevaluate its cash plans for the years 2001-2005 and to assess the ability of all the partners to meet their commitments to provide for these cash needs. We also recommended that NSF encourage the facility's board to develop a contingency plan that equitably distributes the responsibility for funding cash shortfalls among the partners.

In response to our draft report, NSF agreed with some of our findings and recommendations and is currently working toward corrective action including updating its policies and procedures to strengthen the management and oversight of large projects, developing guidelines for the use of foreign contributions currently held in reserve, and providing a cash-flow plan for the facility that includes a risk analysis of partner contributions. NSF states that over time its contributions to the facility will not exceed the 50 percent cap intended by Congress. However, NSF also states that the costs of the facility have been appropriately classified between the construction and operations budget and disagrees that operations funds are being used to cover construction costs. NSF also believes that its allocation of costs between its appropriations accounts was within its discretion under the guiding principles of federal appropriations law. Nevertheless, NSF has agreed that in the future it will not supplement its Major Research Equipment appropriation account with funds from other sources.

Cost Sharing

Our September 2000 Semiannual Report discussed significant problems with awardees' ability to meet their cost-sharing requirements. Specifically, in that Semiannual (pages 9 and 10) we reported that a western university foundation could support only $8 million of the $38 million (21%) it claimed as cost sharing. In this Semiannual Report we discuss a court decision on a lawsuit filed against NSF by the foundation of another campus in the same university system. As we discuss below, the foundation at that campus sued NSF over the return of funds we questioned as a result of unsupported cost sharing. The district court agreed with NSF's position and directed the foundation to make repayment.

Also, four audit reports on the same university system identified cost-sharing issues at three additional campuses. These issues included the lack of cost-sharing policies and procedures, overvaluation of claimed cost sharing, particularly in the areas of labor effort spent on awards and donated software, inadequate monitoring of sub-recipients' cost sharing, and the failure to report or certify cost-sharing amounts annually to NSF. Having identified cost sharing as a concern at 22 percent of the university's campuses, we initiated an audit of the entire system, beginning with a management control survey of grant administration at the university level. We plan to report on the results of this survey as well as the audits of cost sharing at several other of the university campuses in a future semiannual period.

Court Confirms Cost Sharing As Contractual Obligation

In the March 1999 Semiannual (pages 24 and 25) we reported that a university foundation had promised to provide cost sharing in the form of an "externship" program in which the participants would be paid while working for industrial participants. During our audit, we found that, although the university foundation claimed cost sharing for more than 40 externships or jobs related to the program, it had actually provided only two jobs and 16 externships. We concluded that failure to meet externship obligations contributed to a substantial shortfall in cost sharing, and that the university foundation should repay NSF $145,351, the excess federal contribution to the project. Additional NSF agency reviews by the Cost Analysis and Audit Resolution Branch, by an appeals panel reporting to the Division of Grants and Agreements, and by the Office of the General Counsel, sustained $139,152 of the disallowed amount.

The university foundation declined to reimburse NSF for the $139,152 and sued the agency. It argued that it was not required to make repayment because NSF funded the award pursuant to legislation requiring that the federal government provide not more than 50 percent of the estimated costs of a funded project. Since NSF had not exceeded the 50 percent limit of project costs, the university foundation maintained that NSF's funding was appropriate. Although the university foundation's cost sharing was less than 50 percent of the estimated costs, it nevertheless stated that the statutory language referencing NSF's responsibility for funding estimated costs should take precedence over the award terms referencing actual costs.

In January 2001, a district court rejected the university foundation's argument and concluded that its interpretation would require an agency to pay an awardee half the amount of proposed costs, regardless of whether or not the awardee performed as promised under the award terms. The court stated that the university foundation had an obligation to follow the terms of the award, and that the statute did not alter these terms. It directed the university foundation to refund the $139,152 to NSF. This is the first court decision in the country declaring that cost-sharing commitments are a part of an award recipient's contractual obligations. The university foundation has appealed the district court decision.

Cost-Sharing Audits at Two Educational Institutions Reveal Problems With Cost-Sharing Compliance and Internal Controls

To assess the risk of cost sharing nationwide, we selected for audit eight educational institutions whose awards required cost sharing of $500,000 or more. The eight included both small and large geographically dispersed institutions with various numbers of awards. In this semiannual period we are reporting on the audits of the first two educational institutions, a western state college and a northeastern state department of education. At both institutions we reviewed internal controls over cost sharing and compliance with federal and NSF cost-sharing requirements. Federal regulations require that cost sharing be verifiable from the recipient's records, necessary and reasonable for the proper and efficient accomplishment of project or program objectives, and allowable under the applicable cost principles. NSF requires that all awardees with cost-sharing obligations of $500,000 or more per award, certify, both annually and in the final project report, to the actual cost-sharing amounts provided.

The western state college had inadequate controls to account for its cost-sharing obligations. NSF provided the college an award for $75,000 with a requirement for the college to provide another $572,332 of cost sharing. At the time of the audit, the college claimed that it had provided almost $1 million of cost sharing. We questioned 60 percent of this amount, including almost $500,000 of costs that were not allocable to the award. Specifically, the college claimed cost sharing for the entire telecommunications infrastructure for 16 schools, although only seven schools participated in the project. It claimed another $100,000 for which it could not provide adequate support. In addition, the college did not submit the required annual and final cost-sharing certifications due to a lack of understanding of these certification requirements. As a result of the college providing less cost sharing than required by the award agreement, we recommended that NSF's costs be proportionally reduced by $20,423.

A northern state department of education also did not have adequate controls over cost sharing. Specifically, it did not maintain separate accounts for the cost sharing on two NSF awards. Commingling the cost sharing for more than one award in the same account makes it difficult to determine whether the awards individually meet their cost-sharing requirements, thereby hampering NSF's ability to administer the award. In addition, it reported to NSF estimated, not actual, cost-sharing amounts.

We recommended that both institutions strengthen their internal controls over cost sharing. We also recommended that the institutions file annual and final cost-sharing certifications that comply with NSF's Grant General Conditions.

Two Southern Institutions "At Risk" Of Not Meeting Cost-Sharing Obligations

Audits performed on two state governments under the Single Audit Act and Office of Management and Budget Circular A-133, ***Audits of States, Local Governments, and Non-Profit Organizations***, found two NSF-funded institutions at risk of not meeting their cost-sharing obligations before the expiration of their awards. A research center affiliated with a southern state university had promised $2,400,000 of cost sharing. However, the auditors found that because the awardee had mistakenly recorded its cost sharing obligation to be $491,459 less than the promised amount, the center was at risk of not meeting its cost sharing requirement. This matter is now in audit resolution at NSF's Division of Contracts, Policy, and Oversight.

A second southern state university promised $771,500 of cost sharing for an NSF award. The university had provided $463,369 of the promised amount. In fiscal year 1999, the auditors determined that the remaining $308,131 was at risk of not being met before the award expired. The university was notified and by fiscal year 2000 it had funded expenditures sufficient to meet the at-risk cost sharing. The university also agreed to assign a specific individual in its Controller's Office to be responsible for ensuring that future cost-sharing reports are submitted to NSF in a timely manner.

Mid-Atlantic Non-Profit Has $42,942 Cost-Sharing Shortfall

An OMB A-133 audit of a mid-atlantic non-profit corporation questioned $45,942 of costs in an NSF award because the corporation did not comply with the cost-sharing requirements specified in the award agreement. The organization proposed to cost share a percentage of funds that was unrealistically high and could not provide the required match from local funds. In response to the audit finding, the organization stated that it has received a one-year, no-cost extension from NSF and expects to meet its cost-sharing requirement during the extension period.

Polar Program Reviews

Western For-Profit Entity Overcharges NSF $79,467 In Fringe Benefits

The United States Antarctic Program (USAP), initiated in 1959, is carried out under the terms of the Antarctic Treaty and Agreed Measures. NSF manages and funds the USAP. Through its Office of Polar Programs (OPP), NSF provides management for the research, logistics, and operational support for the USAP. The objectives of the research program are to understand the function, evolution, and adaptations of land and ocean species and ecosystems; the geology and geologic history of the continent and its surrounding ocean basins; and the structure and dynamics of the magnetosphere and ionosphere.

For the period of October 1, 1989, through March 31, 2000, NSF had a $890,994,350 contract with Antarctic Support Associates (ASA), a western for-profit organization, to provide science logistics, operations, engineering, and construction support to the USAP.

Effective April 1, 2000, NSF awarded this contract to a new contractor, Raytheon Polar Services Company (Raytheon). To assist the NSF Contracting Officer in closing out the former contract to ASA, we conducted an audit of costs incurred for the period January 1, 1999 through March 31, 2000. (Our prior audits of this contract reviewed costs incurred in earlier periods up to January 1999.) Of $170,413,763 in claimed costs, we questioned $79,467 in fringe benefit costs charged to the contract, because the fringe benefit rates used to bill NSF were greater than the actual fringe benefit rates incurred by ASA. ASA also did not maintain a system to adequately identify contract commitments and obligations at the close of the contract period. Failure to maintain a system to track commitments and obligations could result in both ASA and Raytheon paying vendors for the same purchases.

ASA also did not maintain adequate controls over government property and equipment. Property and equipment valued at $415,578 could not be located in a physical inventory that was conducted during the phase-in of the award to Raytheon. Some property could not be identified by model or serial number, location, or type of equipment. During the course of the audit we also noted that ASA needed to resolve with NSF issues of an interest and penalty liability for unreported state sales tax and underspent information infrastructure funds.

ASA agreed with the questioned fringe benefit costs, and we have referred the report to NSF's Division of Contracts, Policy, and Oversight to resolve with ASA the other issues, findings, and observations.

Status of Polar Construction Projects

Each quarter the OIG, along with NSF program and contract staff, participates in joint quarterly meetings to assess the progress of the South Pole Safety and Environmental (SPSE) and Station Modernization (SPSM) projects. We consider these meetings to be valuable because they assist NSF management in proactively identifying problems and enable our office to monitor the status of their efforts.

In our last update of the SPSE project, we wrote that work on the final phase was expected to be accepted by the Foundation in January 2001. OPP is reporting that this project – including a new garage/shops complex, a fuel storage facility, and a power plant – was completed and conditionally accepted pending completion of a few remaining punchlist items, thereby marking the end to this five-year, $25 million effort. We are currently coordinating an audit of the former support contractor's financial records, including records pertaining to this project, and expect to report the results of this audit in the next semiannual period.

With regard to the SPSM project, OPP reported that design work on the facilities is 95 percent finished, and is 20 percent complete on the computation and communications systems. During the 2000/2001 austral summer, the shell for the first phase of the elevated station was erected and enclosed. OPP also completed during this past season the design, procurement, and assembly of earth station electronics and a nine meter satellite earth station. Once reliably operational, this system will provide communications over two satellite systems (MARISAT 2 and GOES 3). This will improve data communications quality, and increase bandwidth and time of day coverage for voice and data communications. Improved data communications quality will enhance Internet service, which supports all station science, health/telemedicine, operations management, and quality-of-life activities.

The estimate of the cost to complete SPSM, initially developed in 1998, is being updated and refined to incorporate procurement and construction activities to date and to adjust for any cost changes occasioned by the transition to Raytheon, the new support contractor, or other factors such as fuel cost increases and delays caused by weather. The estimate of the completion cost is periodically reviewed by OPP to ensure that project management is based on the most accurate and up-to-date information available. To date, SPSM remains on schedule, but, as reported in our September 2000 Semiannual report (page 17), air logistics continue to challenge the project because of limited crew availability and difficult weather conditions. OPP continues to evaluate options and alternatives for meeting the project's logistics requirements.

Award Administration

In carrying out its mission, NSF makes awards (grants, contracts, and cooperative agreements) to colleges, universities, other nonprofit organizations, and for-profit organizations. Through audits and other reviews, we work with NSF management to promote effective oversight of its awards, programs, and operations.

Grant Audits

During this semiannual period, we completed four audits of NSF award recipients. In general, these audits revealed issues related to cost sharing, financial management and internal controls. A summary of the results for each of these grant audits is provided below.

University Service Center Overcharges NSF Awards

We reviewed costs charged to NSF awards by a southern university's service centers. The centers operate as in-house, non-profit enterprises to provide institutional users with access to highly specialized scientific equipment or other services. Federal regulations require that these centers recoup no more than their total operating costs through direct charges to institutional users at approved billing rates. The university must review and adjust the billing rates periodically to ensure that the centers are complying with federal regulations and do not accumulate significant amounts of surplus cash over a long-term period.

Our review found that three of the university's centers accumulated a surplus cash balance of $746,494 over the period March 21, 1983, through August 31, 1995. Of this amount, we determined that NSF awards were overcharged by $134,069. However, we considered the overcharges to NSF awards to be resolved because the university provided evidence of unbilled services to NSF awards between September 1, 1995, and August 31, 1999, offsetting the previously incurred overcharges.

We believe the overcharges and the accumulation of surplus cash occurred because the university did not have written policies and procedures for the operation and management of its centers. In addition, billing rates were not documented, periodically reviewed, or adjusted by the university.

Based on our recommendations, the university promulgated written policies and procedures for the operation and maintenance of its centers in order to prevent overcharging of costs to federal awards in the future.

Eastern Non-Profit Consortium Needs To Strengthen Its Internal Control Structure

We found deficiencies in the internal control structure for ensuring financial compliance with NSF award conditions and federal regulations at an eastern non-profit consortium. The consortium received an award under the NSF Teacher Enhancement Program for $4.3 million and promised cost sharing of $3.2 million for approximately four and one-half years. The consortium's main mission was to develop a comprehensive curriculum for school districts; to develop strategies for reforming science education in schools through coordinating community outreach and communication efforts between scientists and educators; and to provide teacher development and training in science.

Of almost $3.1 million in costs claimed by the consortium, we questioned $84,576. Salary and fringe benefit costs of $76,364 were questioned because one employee's salary and benefits were charged improperly to the NSF award. Charges for another employee's salary and benefit costs were inequitably allocated among the NSF award and other projects also benefiting from the employee's efforts. Additionally, we questioned $1,443 in indirect costs related to the questioned salary and fringe benefit costs and costs claimed as indirect costs that were direct costs. We also found that the consortium did not refund to the government $826 in earned interest on federal funds and had claimed $5,943 in costs that were not reflected in its accounting records. Further, at the time of our review the consortium had inappropriately claimed $180,555 in cost sharing based on cash receipts, which had not been expended on the project. If this amount is not expended on the project by the expiration date of the award, it will become a questioned cost to the extent that NSF has exceeded its proportional cost-sharing contribution.

The questioned costs arose due to internal control deficiencies, including lack of management oversight regarding the proper allocation of costs, lack of cash management procedures, and lack of a system to verify salary amounts paid. Specifically, the consortium did not have all necessary approval processes in place for cost allocation; did not request NSF funds on a reimbursement basis, resulting in excess cash on hand; and did not have a system in place to verify salary and benefits paid by a separate organization that is reimbursed by the consortium.

The consortium agreed with our audit findings and has indicated that it will take actions to correct deficiencies in its internal control structure and cash management procedures and make necessary adjustments to the costs charged to the NSF award.

Midwestern School District Needs to Document Labor and Participant Stipend Costs

We audited a cooperative agreement between NSF and a midwestern school district to assist the school district in reforming its K-12 mathematics and science education program. Of the $11 million in costs claimed by the school district, we did not identify any questioned costs. In addition, the results of our testing disclosed no weaknesses in the school district's internal control structure. However, we found that the school district was not in full compliance with federal cost principles because it did not require its employees to complete timesheets or sign semiannual certifications to support labor and participant stipend costs charged to the cooperative agreement. We were able to substantiate that the costs charged under the agreement were related to employees' work on the agreement only by interviewing the school district's project director and other personnel and reviewing other available documentation.

Federal rules require completed time sheets or signed certifications to provide NSF with assurance that labor and stipend costs charged to the award are accurate and reflect the actual work performed by employees. We recommended that the school district amend its policies to conform with the federal cost principles related

to the documentation of these types of costs. The school district concurred with our finding. We have forwarded our report to NSF's Division of Contracts, Policy, and Oversight for final resolution.

Northwest Tribal Federation Claims Unsupported and Unallowable Costs

The NSF ***Rural Systemic Initiatives (RSI)*** program was designed to improve the scientific and mathematical literacy and achievement of all students in a region. We audited an RSI award issued to a northwest tribal federation that is responsible for enhancing and promoting the cultural, economic, and political voice of the people that the federation represents. For this award the federation claimed $8.9 million in costs incurred. We questioned a total of $421,852 in claimed costs and interest income. Contrary to NSF and federal requirements, the federation charged $264,830 of salaries and related fringe benefits to the award based on budgeted amounts rather than on actual and documented payroll costs. We also questioned $88,505 in other award costs that the federation claimed in excess of the actual incurred costs. Additionally, we questioned $10,146 of travel costs, $40,200 of materials and supplies, and $4,096 of subaward costs charged to the award because these costs were either not related to the award or not supported by source documentation. Further, we found an additional $14,075 in interest income earned on NSF advanced funds that the federation should have remitted to the U.S. Department of Health and Human Services.

The federation disagreed with some of the questioned costs, and we have forwarded the report to NSF's Division of Contracts, Policy, and Oversight for resolution.

Review of NSF's Experimental Program to Stimulate Competitive Research (EPSCoR)

NSF's EPSCoR program seeks to develop research infrastructure in states that have historically received a small share of federal research dollars. Initiated in 1978, EPSCoR is managed by an office within NSF's Directorate for Education and Human Resources (EHR). In FY 2000, the program had a budget of $48 million; nineteen states and the Commonwealth of Puerto Rico participated.

We reviewed EPSCoR to assess how well the program complies with selected NSF requirements and addresses NSF's goals for it. Our review included consideration of program administration at NSF and project administration in two states, Mississippi and Maine.

Building Infrastructure. We found that the EPSCoR program played a constructive role in building a "research culture" at universities that lack the physical facilities and institutional practices that support research. Many such universities build research

infrastructure by funding groups composed of a critical mass of researchers with similar interests. Institutional leadership plays a crucial role in identifying and developing promising niches for development. To become competitive within a niche requires assembling researchers at various career stages, not all of whom need help in becoming competitive for federal research funds. In addition, fostering competitiveness may involve funding researchers who are not likely to remain in the EPSCoR state.

Bringing Researchers into the Mainstream. The EPSCoR program tries to bring new researchers into the mainstream of NSF funding by its "co-funding" initiative. Through co-funding, EPSCoR helps NSF's regular research programs support proposals that, though meritorious, do not rank high enough to warrant support from regular program funds. We found that co-funding was operating much as it was designed to do, but that the program was targeted at broad areas of science and did not appear to have the focused impact on specific research areas that EPSCoR's infrastructure awards had. We also noted that NSF does not adjust the EPSCoR program's co-funding contribution in the small number of cases where the principal investigator (PI) moves to a non-EPSCoR state and the award is transferred to the PI's new university. We recommended that NSF develop an administrative mechanism to ensure that EPSCoR co-funding dollars do not support, either directly or indirectly, researchers who have moved to non-EPSCoR states.

State EPSCoR Committees. The EPSCoR program requires that states form committees representing the views of leaders in various institutional sectors, including business, government, and higher education. EPSCoR committees are supposed to guide research infrastructure planning in their states. In the two states we visited, we found that EPSCoR had facilitated statewide coordination in higher education and research and played an integral part in economic development planning. We also concluded that the committees' efforts to build broad and sustainable partnerships in support of research-based development could be improved by cultivating knowledgeable persons from outside higher education to play more prominent roles in EPSCoR. We recommended that NSF and Mississippi make business and state government participation in Mississippi's EPSCoR committee activities more structured and formal.

Administration of EPSCoR awards. We examined how NSF's EPSCoR Office administered its large infrastructure awards. We found widespread agreement that NSF project monitoring was reasonable, that proposal review had been constructive, and that more NSF site visits could improve project performance. Our visit to Mississippi provided evidence for this latter point: it catalyzed an organized effort in the state to create a dedicated source of state funds to meet federal matching requirements. We also heard numerous suggestions that NSF develop general eligibility criteria for EPSCoR support and not simply publish a list of eligible states. We recommended that NSF develop such criteria to improve program administration.

Interagency Coordination. Our review of coordination among the federal agencies with EPSCoR-like programs indicated that current practices were adequate and posed no significant problems for the states that we visited.

Financial Compliance by EPSCoR Awardees. Our examination of awardee institutions' compliance with NSF financial and administrative requirements indicated that awardees needed to monitor their subcontractors more closely.

In addition to our formal recommendations, we made numerous observations and suggestions in our report to help managers focus their own efforts to improve performance. EHR and the EPSCoR awardees in the two states we visited said they found our report useful, and EHR generally agreed with our recommendations. Maine EPSCoR was also generally in agreement with our recommendations. Mississippi EPSCoR largely disagreed with our financial recommendations. However, Mississippi was receptive to our suggestion to form an advisory committee to enhance business and government participation in the state's EPSCoR effort.

Contract Audits

In addition to the grant audits and review described above, we conducted audits of contracts received by three contractors, as requested by NSF's Division of Contracts, Policy, and Oversight. In general, we found that the contractors adequately accounted for NSF funds, although there were instances where each contractor could improve its compliance with NSF award conditions and federal regulations, or strengthen internal controls. A summary of the results for each of these contract audits is provided below.

Audit of an NSF Software Support Service Contractor

We audited three task orders issued to a midwestern for-profit corporation that provided systems development and computer support services to NSF. Of $8.2 million in costs claimed under the task orders, we questioned $14,242 because the contractor could not locate time records for claimed labor costs on one of the task orders. The contractor stated that it had misplaced the time records and that it was having difficulty locating them.

In addition, the contractor did not submit indirect cost rate proposals to the Defense Contract Audit Agency (DCAA) for fiscal years ended March 31, 1997, 1998, 1999, and 2000 to satisfy the contractual provisions requiring final rates to be used in reimbursing indirect costs. Future audits of the indirect cost rate proposals and negotiations by DCAA could change the amount of indirect costs the contractor has currently claimed on the NSF task orders. Because NSF authorized the contractor to claim indirect costs using provisional indirect cost rates, the contractor has charged the agency approximately $2 million on two task orders. However, if the audit finds actual indirect cost rates to be lower than the provisional indirect cost rates used to charge the NSF awards, the contractor will need to reimburse NSF for the difference.

We recommended that the contractor submit indirect cost rate proposals to DCAA for audit and negotiations and adjust its claims to NSF if the actual rates are less than the provisional rates it used to bill indirect costs to the NSF awards.

The contractor agreed that it was unable to provide the documentation to support the costs questioned by the auditor. It also agreed to submit its indirect cost rate proposals to DCAA for review and negotiation. We have forwarded our report to NSF's Division of Contracts, Policy, and Oversight for audit resolution.

Mid-Atlantic Non-Profit Organization Claims Unallowable Costs

We audited two NSF awards to a mid-atlantic non-profit science organization. The first award required the organization to furnish services, personnel, material, equipment, and facilities for a longitudinal doctorate study. The second award provided funds to explore the current status of high school mathematics and science education by evaluating advanced-student curricula, such as the Advanced Placement and International Baccalaureate programs.

Of $3.2 million of costs claimed by the organization for both awards, we questioned $40,235. The organization over-billed NSF $9,381 in overhead and general and administrative costs. Also, the organization could not locate 12 percent of the vendor invoices we requested, leading us to question $20,714 in travel and other direct costs. Questioned costs of $5,117 also included certain "working dinner" meal costs, because the organization could not provide documentation to show that the costs were allocable, allowable, and reasonable, as required by federal regulations. In addition, we questioned $5,023 of overhead costs that were associated with the travel, meal, and other direct costs. We recommended that the organization adhere to allowable indirect cost rates and that it exercise greater care in maintaining source documentation to support the costs charged to the awards.

We also found that the organization did not use the proper negotiated technology rate or the correct percentage of employees' efforts to calculate computer-related charges. To strengthen the organization's compliance with federal regulations and award conditions, we recommended that it show more diligence in the calculation of computer-related charges reported to NSF.

The organization disagreed with the findings regarding overhead, general and administrative costs, and questioned meal costs. We have forwarded our report to NSF's Division of Contracts, Policy, and Oversight for resolution.

Eastern For-Profit Corporation Claimed $54,478 in Unsupported Costs

We conducted an audit of two contracts awarded to an eastern for-profit corporation. The purpose of these awards was to provide data processing services and database maintenance. Out of a total of $2.9 million in costs claimed by the

corporation, we questioned $54,478. These costs included $40,791 in direct labor and related indirect costs and contract fees questioned due to missing payroll support, $8,603 in other direct costs and related indirect and contract fee costs questioned due to missing vendor invoices, and $5,084 in general and administrative costs that were charged in excess of the corporation's actual costs. Additionally, we found a material internal control weakness in that the corporation incorrectly categorized certain claimed costs it charged to the NSF award. This hampers NSF's ability to monitor the program's fiscal progress.

We recommended that the corporation maintain adequate accounting records to support claimed costs and claim only the allowable general and administrative costs to NSF. We also recommended that the corporation improve internal accounting controls by classifying and recording costs in the correct expense categories.

The corporation disagreed with the findings that it incorrectly classified costs in relation to its approved budget and claimed general and administrative costs in excess of actual costs. The corporation also indicated that it was unable to provide the documentation to support the questioned payroll and vendor invoice costs. We have forwarded this report to NSF's Division of Contracts, Policy, and Oversight for resolution.

A-133 Related Reviews

OMB Circular A-133, issued pursuant to the Single Audit Act of 1984, as amended, sets forth standards for obtaining consistency and uniformity among federal agencies for the audit of state governments, educational institutions, and nonprofit organizations that receive federal awards. Reports prepared by independent auditors in accordance with this circular are referred to as A-133 audits.

Our office receives and reviews the A-133 reports submitted to us by the Federal Audit Clearinghouse or auditees. During this reporting period, we reviewed 114 A-133 audit reports with NSF expenditures approximating $1.5 billion for fiscal years 1997, 1998, 1999, and 2000. Fifty-five reports involving questioned costs, internal control weaknesses, and/or non-compliance with federal laws and regulations, were sent to the Division of Contracts, Policy, and Oversight for audit resolution. For example, the auditors identified $150,205 in questioned costs at eight institutions. The questioned costs were related to travel, personnel compensation, indirect costs, scholarship costs, and cost sharing. In addition 15 institutions had internal control findings primarily related to unallowable costs. Another 15 institutions had issues related to weaknesses in equipment and real property management. Other internal control findings included financial reporting, cash management, procurement and suspension and debarment concerns.

Quality Control Review of an A-133 Audit of a Federally and Privately Funded Foundation

At the request of the U.S. Department of State (State), we performed a quality control review of the A-133 audit of a foundation funded by NSF, State, other federal agencies, and private organizations for the year ending December 31, 1999. The foundation was established under the Freedom Support Act to assist the Newly Independent States (NIS) of the former Soviet Union to develop collaborative projects between NIS and U.S. researchers. From September 18, 1995, through December 31, 1999, NSF provided to the foundation awards approximating $30.4 million. We found that the audit generally met the audit requirements of OMB Circular A-133 and its related Compliance Supplement and the ***Government Audit Standards***. We also found that the independent auditors' testing was sufficient, based on the assessment of control risk, to support their opinion that the financial statements were free of material misstatement and were presented fairly and in conformity with generally accepted accounting principles. We made four recommendations to ensure that required quality control reviews and project audits are performed, significant accounting policies are properly identified, and the required Data Collection Form is accurately completed. NSF management agreed to implement all of the recommendations.

Resolution of Prior Audits

During this reporting period, ten audit reports with significant recommendations have been resolved by NSF management. By reducing future or recovering past payments to award recipients, these resolutions provided NSF with over $600,000 to use in funding other award opportunities. Just as important as financial savings, the audit resolution process also resulted in the agreement by some award recipients to improve their internal controls for managing and administering federal awards in compliance with NSF and federal regulations.

A Southern School District Must Repay NSF $343,362

In our September 2000 Semiannual Report (pages 6 and 7), we reported the results of an audit of a southern school district that received a $10.1 million ***NSF Urban Systemic Initiatives (USI)*** cooperative agreement. NSF decided to phase out this cooperative agreement because the school district did not administer its USI award in accordance with agreed upon project objectives. We questioned $1,963,957 of $4,012,542 in promised cost sharing because we could not determine whether it was reasonable, allocable to the award, or allowable under NSF and federal regulations. In addition, the school district did not have documentation to show that it had met NSF's cost-sharing requirements for the award. We also questioned $888,957 of $7.8 million in direct costs claimed by the school district, because it was unable to support $815,799 of various types of costs and claimed $73,158 of unreasonable, unallocable, or unallowable costs.

During the resolution of the audit, the school district provided NSF with additional documents to show that the cost-sharing obligation had been met and adequately supported. Accordingly, NSF allowed $1,963,957 of the questioned cost sharing. In addition, the school district provided documentation and explanations to support $535,220 of $888,957 in direct costs that had been questioned. As a result, the school district is required to repay NSF $343,362 ($353,737 of sustained costs less a credit of $10,375 for unbilled indirect costs).

NSF Recovers $169,596 from Western Educational R&D Agency

In our September 2000 Semiannual Report (page 13), we reported on our audit of three awards made to a western educational research and development agency to help teachers effectively provide science education to students. Of the $4.2 million in claimed costs, we questioned $445,742 charged to one award because these costs were determined to be unallowable and/or inadequately supported. We also made recommendations for the agency to improve compliance and internal controls for filing financial disclosure statements, reporting changes in project scope to NSF, procuring goods and services, and reviewing the allowability of costs.

After reviewing additional documentation provided by the agency, NSF management sustained $169,596 of the amount questioned. The agency agreed to adjust or offset unbilled NSF award costs for the sustained amount. For the compliance and internal control issues, the agency provided NSF with completed financial disclosure statements and written policies and procedures for procurement activities and for the review of the allowability, reasonableness, and allocability of project costs. NSF was satisfied that the agency would implement these procedures to comply with federal regulations. In addition, NSF resolved with the agency that a change in the project's scope had not occurred and thus did not require the agency to report a change.

Northeastern Company Required to Offset $71,595 Against Future Costs

In our September 2000 Semiannual (page 14), we reported on an audit of two awards to a northeastern for-profit organization dedicated to mathematics education. We found that the organization had miscalculated NSF-funded expenditures appearing in quarterly financial reports sent to NSF. In addition, the organization had overbilled for space rental and computer usage and claimed NSF grant funds as cost sharing. In total, we questioned $121,095 in claimed costs and cost sharing. Also, regarding the unexpended cash claimed as cost sharing, we recommended that the awardee implement procedures to restrict the unexpended cash for future payment of specific award cost-share expenditures.

After reviewing our audit report and additional documentation submitted by the auditee, NSF sustained $71,595 of the questioned costs by requiring the organization to offset the costs against claimed costs, but did not insist on the additional cost-sharing safeguards recommended, stating that the institution's current policies adequately addressed the problem.

NSF Used Reviews of Earthquake Centers to Adjust a Final Award By $65,351

We previously reported on our reviews of two earthquake centers established to conduct and coordinate earthquake engineering research in our September 2000 Semiannual Report (page 17). NSF administered the awards through cooperative agreements with the two universities. Our review of the financial and administrative systems at the two earthquake centers identified areas that could be strengthened during the early stages of the centers' operations. In both cases we found that improvements were needed in the reports required to be sent annually to NSF under the cooperative agreements. Specifically, we recommended that the centers work with their respective university administrators to improve the reliability and completeness of the reported data, and disclose or otherwise indicate the amount of unspent obligations exceeding 25 percent of the award amount. In accordance with our recommendations, the universities have taken remedial action, such as providing expenditure and cost-sharing information to the center and verifying that the annual report data is correct. Additionally, NSF has revised its reporting guidelines to require all engineering research centers to report unspent obligations in excess of 25 percent of the award amount.

At one of the centers, we also questioned $65,351 paid to consultants in excess of the maximum federal reimbursement allowed. NSF management agreed that these costs were unallowable and asked the university to adjust its unbilled NSF award costs by the amount questioned.

Western University Foundation To Take Action to Improve Control of Managing, Accounting, and Reporting Its Cost-Sharing Obligations

On pages 9 and 10 of our September 2000 Semiannual Report, we reported the results of an audit of a western university foundation (the foundation) that received three awards related to the Federal Technology Reinvestment Project, a federal initiative to assist in the development of dual-use technologies addressing both defense and civilian needs. We reported that the foundation provided acceptable cost sharing to meet the requirement on two of the awards, but did not provide sufficient cost sharing for the third award. We therefore recommended that NSF require the foundation to reimburse the $271,440 cost-sharing shortfall on the third award and improve its overall control processes for valuing, supporting, and meeting its cost-sharing obligations. Our audit also found that the foundation had not developed ten

multimedia-based training modules, a project for which it had received $200,000 through one of the awards. We recommended that NSF require the foundation to demonstrate that it had developed the modules and make them available to the intended industrial and academic communities, or return the $200,000 awarded for their development.

In response to our report, the foundation provided to NSF more documentary support for the cost-sharing expenditures that we questioned, and it claimed additional cost-sharing expenditures not previously provided to us during our audit. As a result, NSF sustained $19,744 of the $271,440 cost-sharing shortfall. In addition, the foundation stated it had taken immediate steps to improve its overall controls for managing, accounting, and reporting cost-sharing obligations. These steps include revising its policies for estimating the value of donated assets, developing a new cost-sharing policy and a comprehensive accounting system to track cost-sharing requirements and milestones, and scheduling staff training on compliance with federal requirements. Further, in response to the audit report, the foundation stated that it plans to produce ten updated multimedia-based training modules that could be uploaded directly to a World Wide Web site.

Cost-Sharing Issues at a University Resolved by NSF

We previously reported on our audit of a $9.3 million cooperative agreement issued to a university in Puerto Rico in our September 2000 Semiannual Report (page 10). The university is one of six institutions that NSF funded under its Model Institutions of Excellence program, a 10-year comprehensive institutional development program. We determined that the university was at risk of not meeting $248,524, or 19 percent, of its $1.3 million required cost sharing. We identified two primary reasons. First, the university mistakenly believed that it was only required to cost share $232,000 instead of $464,000 in the award's third year. We confirmed with both the NSF grants officer and the program officer that the university was required to cost share $464,000 in the third year. Second, the university claimed $112,516 of unallowable cost sharing. During the audit resolution process, NSF determined that it was the university's intent to cost share only $232,000 in the award's third year and amended the award to reflect a $232,000 cost-sharing requirement. In addition, NSF did not believe that the university was at risk of not meeting its cost-sharing obligations, although it disallowed $112,516 of claimed cost sharing identified in our audit.

Also, the university agreed to implement our recommendations to address weaknesses in its controls for ensuring compliance with NSF and federal regulations.

Midwestern Board of Education Must Improve Accounting For Cost Sharing And Labor Costs And Repay NSF $2,355

In our September 2000 Semiannual Report (page 7), we reported that a midwestern board of education was at risk of not meeting its $10.1 million cost-sharing obligation for an NSF award because it did not adequately document its cost

sharing. Additionally, the audit found approximately $970,000 in questioned direct costs, related primarily to inadequately supported salaries and fringe benefits. We recommended that the board implement procedures to account for cost sharing adequately, ensure that time and attendance records are maintained as the basis for salary costs claimed under the award, and modify its accounting records and financial report to NSF to reflect an adjustment for the questioned fringe benefits.

During the audit resolution process, NSF's Cost Analysis and Audit Resolution (CAAR) branch performed a detailed analysis of the cost sharing claimed for the award during the last year and also determined that 30 percent of the costs claimed were unrelated to the award. To address these concerns and the internal control findings in the OIG audit report, CAAR required the board to take corrective action and implement new grant administrative and accounting policies. Specifically, the board issued new policies to account for cost sharing, including the pre-screening of costs claimed for allowability. In addition, the board revised its accounting system to accumulate all cost sharing related to the NSF award under the same accounting code and to identify the source of the funding. The board also agreed to issue new policies and procedures regarding the timekeeping system, which included revisions to its employees' timekeeping records to reflect an after-the-fact certification and to show the percentage of effort worked under the award. The board's actions to address these significant accounting control weaknesses should ultimately prevent future claims from being questioned.

Working with the institution, NSF was able to satisfy itself that corrective action was implemented and, therefore, cost-sharing obligations were no longer an issue. Also, the board was able to provide additional documentation to support the questioned costs. After consulting with the OIG, NSF allowed all of the questioned costs except for $2,355, which included $2,180 in unreasonable consultant costs and $175 in unallowable material and supply costs. Similarly, it was able to demonstrate that it had fulfilled its cost-sharing obligation.

Northwestern Foundation Must Repay $1,553 and Strengthen Internal Controls

We reported on an audit of three awards made to a northwestern non-profit educational foundation in our September 2000 Semiannual Report (page 13). We identified questioned costs of $141,708 because the foundation spent funds budgeted for participant support on other activities without the required approval of the NSF program official. Additionally, it could not provide supporting documentation for various costs. We also noted that the foundation fell short of meeting its cost-sharing obligation by $40,970.

During the audit resolution process, the foundation produced documents to support most of the questioned costs and all of the cost-sharing shortfall. As a result, the foundation agreed to repay NSF $1,553 primarily for unsupported travel costs. In addition, the foundation agreed to strengthen its internal controls over documenting claimed costs, securing approvals for certain transactions, and reconciling its general ledgers to federal cash reports.

Investigations

We investigate allegations of wrongdoing involving institutions, organizations or individuals that receive funds from, submit proposals to, review proposals for, conduct business with, or work for NSF. If we determine that an allegation has substance, we assess the seriousness of the allegation and either recommend administrative action to the NSF's adjudicator, the Deputy Director, or refer our investigations to the Department of Justice or other prosecutorial authorities for criminal prosecution or civil litigation.

Information for OIG investigations comes from many sources. NSF officials, grant recipients, private citizens, and staff from governmental agencies often refer tips or other information. Another source is our Hotline, a toll free number that provides anonymity and direct access to OIG staff. OIG staff may also be contacted by e-mail at oig@nsf.gov to notify our office of any wrongdoing related to NSF processes, funds, or projects.

HIGHLIGHTS

Administrative Investigations

Findings by the Deputy Director

Fabrication of Research Data is Misconduct in Science

In our March 2000 Semiannual Report (page 19), we described the case of a chemist at a Delaware university who admitted to fabricating data under an NSF award. The chemist adjusted the controls on an analytical device so that it generated an apparent signal even though no ***bona fide*** signal was present. Consistent with our recommendations, NSF's Deputy Director concluded the chemist committed misconduct in science and debarred him for 1 year.

NSF Concludes Principal Investigator Committed Misconduct in Science

In our September 2000 Semiannual Report (pages 24-25), we discussed the case of an engineer who used a model published by other scientists without appropriate citation as the basis for two proposals submitted to NSF under the Small Business Innovation Research (SBIR) program. In addition, the engineer's proposals contained text and a figure almost identical to text and a figure in the scientists' published paper. We determined the engineer used the published model and copied text and a figure into his NSF proposals, as well as in proposals submitted to other agencies. Consistent with our recommendation, NSF's Deputy Director sent the engineer a letter of reprimand stating that he committed misconduct in science by plagiarizing material from a published paper without attribution and without the authors' permission. The letter of reprimand also noted the engineer misrepresented that the model was first developed by his company, rather than by the original authors.

Misconduct Investigations Forwarded to the Deputy Director

Doctoral Candidate Falsified Data in Thesis

We received notification from a California university that it was investigating an allegation of misconduct involving the manipulation of experimental data by a chemistry graduate student working under an NSF award. The allegation originated when the graduate student voluntarily disclosed he removed outlying data points from the data graphs, created new data files, and altered an internal computer clock to obscure his manipulation of the data files. We concluded the allegation was substantive and deferred investigation to the institution. The graduate student cooperated fully with the institution's investigation committee which concluded the student was guilty of scientific misconduct. The student was formally reprimanded and required to revise and resubmit his doctoral dissertation to more accurately describe

how he had presented the data. The institution also delayed awarding the student's doctoral degree for one year.

We reviewed the committee's report and the actions of the institution and determined the investigation report was fair, accurate, and thorough, obviating the need for an independent OIG investigation. Based on the committee's report, we concluded that the graduate student committed misconduct in science when he intentionally manipulated his experimental data to enhance the graphical presentations. We recommended that NSF send a letter of reprimand to the graduate student informing him he has been found to have committed misconduct in science.

Plagiarized Material in a Biological Science Proposal

We received an allegation that an assistant professor of biology at an institution in Washington plagiarized material from another scientist's NSF proposal into his portion of a collaborative NSF proposal, without attribution or distinction. We asked the assistant professor for an explanation of why the text in his proposal was identical or substantially similar to material in the source proposal. In response, the assistant professor stated that he had permission from the author, who was the assistant professor's former Ph.D. advisor, to "recycle" some of the material from the source proposal. We wrote to the author and asked for his recollection of the subject's interaction with the source proposal. He stated that he did not provide the subject with a copy of the source proposal or any information contained therein. Based on the subject's statements and the information supplied by the subject's former advisor, we concluded the allegation of plagiarism was substantive and deferred further investigation to the assistant professor's institution.

The institution's investigating committee identified text plagiarized from the source proposal. The institution concluded that the assistant professor committed misconduct in science and issued a letter of reprimand. In addition, the institution required certifications for a period of three years that any other proposals for external funding did not contain plagiarized materials, and it directed the assistant professor to instruct his students on the proper conduct of scientific research, with special attention to avoiding plagiarism.

We reviewed the institution's report and determined the institution's investigation was a fair, accurate, and thorough evaluation of the facts relevant to the allegation. Accordingly, we determined the committee's report could be used in lieu of our own independent investigation. Based on this report, we concluded the assistant professor acted with at least gross negligence in copying verbatim text from the source proposal into his working notes and subsequently copying verbatim text from those notes into his collaborative proposal without proper attribution of the original sources. We recommended that NSF find the assistant professor committed misconduct in science, send him a letter of reprimand, and require for a period of two years that he submit certifications and assurances to OIG that any documents he submits to NSF contain no plagiarized material.

Significant Administrative Case Activity

The Perils of Plagiarism

Allegations of Inadequate Citations

We receive more allegations of plagiarism (verbatim plagiarism as well as intellectual theft) than any other type. Typically, intellectual theft, also known as plagiarism of ideas, cases contain little verbatim copying of material. Instead, complainants believe the subjects have inappropriately taken credit for a novel idea or technique without properly citing the original research. As examples, we discuss three cases we closed this period that involved alleged intellectual theft.

In one case, a reviewer believed the PI and the co-author of an NSF proposal presented ideas that were developed by another scientist as their own and failed to provide proper attribution. The reviewer provided a reference to the scientist's primary paper in which he believed the ideas for the research had been first described.

We consulted a researcher with expertise in the field, who thought the idea for the proposed research came from the scientist's primary paper, but noted the PI referenced one of the scientist's older papers in his proposal. We agreed with the researcher's view that the citation to the older paper did not make clear the extent to which the PI used the scientist's ideas and methodology in the proposal.

The PI acknowledged that he and the co-author used the scientist's research as the starting point of their methodology, but he thought the scientist's work had been sufficiently cited. Although the PI told us he and his co-author could not have used the scientist's primary paper as their source because it was unpublished at the time of submission of the proposal, the scientist told us he recalled sending a preprint of his primary paper to the PI. The PI failed to satisfactorily explain the relationship between the ideas in his proposal and the scientist's proposal. It appeared he may have relied on a preprint of the scientist's primary paper before submitting his proposal. Therefore, we deferred further investigation to the PI's institution.

The institution's inquiry committee concluded there was insufficient substance to proceed with an investigation. The committee believed it was unclear which preprints the scientist sent the PI. It concluded that the reference to the older paper was an adequate citation to the scientist's research. However, it also felt that the PI's use of the scientist's ideas and text should have been more carefully acknowledged and that the PI's failure to do so was inappropriate scholarly conduct, although not misconduct in science. After reviewing the University's report and supplemental material from the PI, we agreed there was insufficient substance to proceed with further investigation.

In another case, a complainant wrote us to point out that a recent paper in a scientific journal, the authors of which acknowledged NSF support, described a phenomenon that was already described in his previously published, NSF-funded research. The complainant thought the authors' experiments were essentially identical to his. Even though the authors cited his papers, he thought the reference to his papers was not as forthright and significant as it should have been to describe the same research.

We asked an engineer with expertise in the area to evaluate the significance of the overlap and whether the authors' reference to the complainant's papers was reflective of its relevance to the complainant's research. The engineer agreed the two research projects were similar. However, the engineer thought the authors' paper took a more rigorous approach to the topic, and the reference to the complainant's papers was part of a serious comment indicating differences in results, and not one made in passing. The engineer thought it was now up to the engineering community to evaluate the merits of the two theories. We agreed that this repetition of experiments was part of the research process and did not represent intellectual theft.

In a third case, a reviewer alleged that the PI and co-PI on an NSF proposal plagiarized material from an unpublished manuscript she co-authored with two collaborators and did not appropriately cite her role in the development of a scientific apparatus. The reviewer also alleged that her request to use the apparatus in the collaborators' laboratories was refused, even though NSF had supported its development.

Although the proposal contained no citations to the reviewer's work, it stated that the apparatus was developed in one of the collaborator's laboratories, and it referenced a personal communication with one of the authors of the unpublished manuscript (and one of the reviewer's collaborators). Therefore, although the reviewer herself was not cited directly, there was a citation to the material from the unpublished manuscript. Accordingly, we concluded the PI had not plagiarized material in the proposal or misappropriated credit for himself or his co-PI related to the development of the apparatus. We concluded NSF had no jurisdiction over the alleged refusal of the collaborators to permit the reviewer to use the apparatus, because the collaborators did not receive direct NSF support for development of the apparatus.

Allegations of Verbatim Copying without Credit

A PI was alleged to have plagiarized text, equations, tables, and figures from two published papers in two NSF proposals submitted to the Small Business Innovation Research (SBIR) program. The PI explained that one of the authors of both papers was formerly an employee of the company and was currently a consultant. The PI also stated that the author was explicitly referred to in the proposals as a participant in the proposed projects, had participated in the preparation of the proposals under the PI's supervision, and had given the PI permission to use the published materials. When a letter from the author confirmed the information provided by the PI, we

concluded that the PI's actions did not deviate from accepted practices. It is notable that unlike other NSF proposals, SBIR proposals do not provide for Co-Principal Investigators, a role that likely would have been assigned to the author, if this option had been available.

In the course of this inquiry, we asked the PI if he submitted an identical or similar version of either of these proposals to any other federal agency. The PI provided a copy of a National Aeronautics and Space Administration (NASA) proposal that was essentially identical to one of the NSF proposals in this inquiry. The NASA proposal was submitted one month after the PI's submission of the NSF proposal. The PI failed to indicate in the NASA proposal, as he is required to, that he submitted the same proposal to NSF. We referred this information to the NASA OIG.

Citations to and acknowledgement of original research are essential to researchers and, therefore, we take perceived and real failures of acknowledgement seriously. We continue to believe careful citation to the literature would prevent many minor allegations of verbatim plagiarism or theft of ideas from arising.

Allegations of Misconduct in Science

A post-doctoral fellow alleged that an NSF-funded PI and his collaborator made false claims in support of his NSF award, violated animal regulations, misappropriated dissertation research results, refused to release research results, and retaliated against him for reporting these complaints to the PI's institution. We confirmed with the PI's institution that it was aware of these allegations, and we formally deferred inquiry of this case to the subject's institution.

The institution's inquiry committee did not find any substance to the allegations of falsified claims, violation of animal regulations, refusal to release research results, intellectual theft, or retaliation. We reviewed the report of the inquiry committee and concluded the inquiry was a fair, accurate, and thorough evaluation of the evidence. In the absence of substantive allegations of wrongdoing, we closed the inquiry.

Conflicts of Interests at an NSF-Funded Engineering Research Center

In our September 2000 Semiannual Report (page 35), we discussed our limited review of conflict of interests (COI) issues at select NSF-funded Engineering Research Centers (ERCs). NSF requires all grantees with 50 or more employees to have in place financial COI policies to monitor financial interests of NSF-supported PIs. ERCs' policies are of particular importance because ERCs are expected to engage in substantial collaborations with private industry.

We received an allegation that a former PI at an ERC and the president of a small business, who were jointly supervising a graduate student, used the student's thesis work to promote the interests of the small business they owned jointly. We

determined that the allegations of intellectual theft had no substance because the former PI and small business owner had worked on the specific research prior to the graduate student's involvement. After evaluating the awardee's COI efforts in this case, we suggested the awardee more carefully review relationships, such as those described in this case, in evaluating potential COIs.

Civil and Criminal Investigations

Cases for Criminal Referral

Community College Falsely Certifies Having a COI Policy

On July 21, 2000, we received an anonymous letter alleging that the spouse of a PI at a small community college in Maryland had been paid consulting fees from the PI's grant.

We requested a copy of the community college's current COI policy, and were told no policy existed. Since 1995, NSF has required institutions with 50 or more employees that apply for NSF grants to certify they have a written and enforced COI policy. In this case, the college's proposal included the required certification, and it received a grant of approximately $500,000. Since the college stated on the grant application that it had a COI policy when in fact it did not, the application included a false certification, in violation of 18 U.S.C. § 1001. As required by the IG Act, we referred this matter to the Department of Justice, which declined to prosecute.

When we reviewed the grant records at the college, we found no evidence of impropriety regarding the participation of the PI's spouse in the grant activities. As part of the resolution of this matter, the college has implemented an interim COI policy to permit effective management of NSF awards and is in the process of approving a final COI policy.

Professor Pleads Guilty to Embezzlement

In our September 1999 Semiannual Report (page 30), we reported a case in which a professor at a Wyoming university, submitted false travel receipts involving an NSF grant. The investigation revealed that the professor attended four conferences for which he received payment from the host organizations, and for which he also charged the trip expenses to his NSF grant.

We referred this case to the United States Attorney's Office, which accepted the case for criminal prosecution. On March 19, 2001, the professor pled guilty to one misdemeanor count in violation of 18 U.S.C. § 641, embezzlement and theft. Subsequently, the professor reimbursed the university $1255.70 for the duplicate payments, and the university returned this money to the government.

Former Director of University Research Center Convicted for Misappropriation

In 1998, a university in Virginia received an anonymous tip that a former director of a university's material research center misappropriated funds. The institution conducted an internal audit and detected potential misuse of federal and state funds for unauthorized travel and other questioned expenses by the former director.

The state police conducted an investigation regarding the misappropriation of state funds. As a result, the director was charged with five counts of Misappropriation of State Funds and three counts of Obtaining Money under False Pretenses. Our office provided information and advice to the state police and state attorney general's office during the investigation.

The state attorney general's office prosecuted the case and obtained a conviction on two counts of felony fraud. The court ordered the former director to pay restitution, including costs of $696, and sentenced him to three years incarceration for each felony count, to be served concurrently. The sentence was suspended with one year of unsupervised probation. The former director paid restitution for the state and federal funds to the university.

President and Vice President of International Database Systems Plead Guilty to Fraud

The Defense Criminal Investigative Service (DCIS), in conjunction with our office, investigated an allegation involving fraud. The investigation revealed that the President and Vice President of International Database Systems (IDS) were involved in altering resumes of IDS staff in order to appear more competitive on grant and contract proposals. IDS submitted a proposal to NSF utilizing the fraudulent resumes, but did not receive an NSF grant.

We referred this case to the United States Attorney's Office in the Eastern District of Virginia, which accepted the case for criminal prosecution. The president pled guilty to three counts and the vice president pled guilty to two counts of Major Fraud against the United States, in violation of Title 18 U.S.C. § 1031. On January 26, 2001, in the United States District Court for the Eastern District of Virginia, the president was sentenced to five months with the United States Bureau of Prisons and fined $70,769. The vice president was sentenced to eight months in community confinement and fined $36,326. DCIS is proceeding with administrative action against the defendants.

Cases Resolved Administratively

NSF Employee Misused Government Travel VISA Card

We received information alleging that an NSF employee used her government travel VISA card for personal expenditures unrelated to official government business. We interviewed the employee, who admitted she used her government travel VISA card to withdraw $5,000 because of personal financial hardships and said she intended to reimburse the account.

The case was referred to the employee's division for administrative action. The employee was issued a letter of reprimand and her government travel VISA card was confiscated and destroyed.

Employee's Judgment Questioned in Failing to Disclose Collaborative Relationship

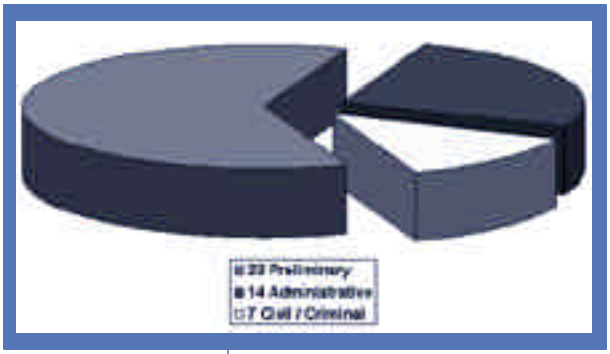
An NSF program officer approved Continuing Grant Increments (CGIs) on two awards for which he had collaborative relationships with the PI as a co-author on publications. The progress reports for each award, which the program officer signed to designate his approval of the CGIs, listed him as a collaborator. However, the program officer failed to list either co-authored paper or the co-authors in his division's required yearly COI disclosure statement. When asked about these matters, the program officer explained that he began these collaborations a few months prior to his approval of the CGIs. He stated that he gained no financial benefit from either award. He said he had not thought about the COI issues and apologized for his carelessness.

Under federal criminal law (18 U.S.C. § 208), unless a waiver is obtained, a federal employee may not participate personally and substantially in a decision in which he or she has a personal financial interest. We reviewed the grant financial records and determined that because the program manager did not receive any financial benefit from the awards, his actions did not constitute a violation of this statute.

However, the program manager did ignore an NSF supplemental COI regulation that requires assessment of a potential conflict when an employee participates in any matter involving a person with whom the employee has had a collaborative relationship within 48 months. Because the federal government no longer employed the program manager, NSF's recourse was limited. We discussed this matter with NSF's designated agency ethics official (DAEO) who reviewed this matter independently. We shared with the DAEO a copy of a letter to the program manager in which we informed the program manager that we closed this case and suggested he take COI policies seriously wherever he worked in the future. The DAEO was satisfied with our office's resolution.

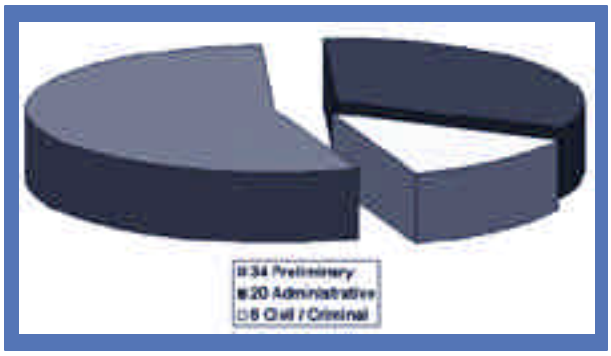
Summary of Case Activity for this Period

We receive allegations of wrongdoing from a variety of sources, including NSF staff, merit reviewers, researchers, graduate students, and institution officials. We review each allegation we receive for substance, including those we receive anonymously, and classify them as either Preliminary, Administrative (which includes research misconduct allegations), or Civil/Criminal cases. Preliminary cases are generally closed within two months, referred to management for resolution, or, if supported by sufficient evidence, converted into Administrative or Civil/Criminal cases.



Cases Received in this Semiannual Period

We received 50 additional allegations in this semiannual period. Of these, 33 were initially classified as Preliminary, 13 as Administrative, and 4 as Civil/Criminal cases. We closed 30 Preliminary cases after determining there was insufficient evidence to warrant opening an Administrative or Civil/Criminal case. We closed 4 Preliminary cases that were converted into Administrative (1) or Civil/Criminal (3) cases.



Cases Closed in this Semiannual Period

Administrative Cases

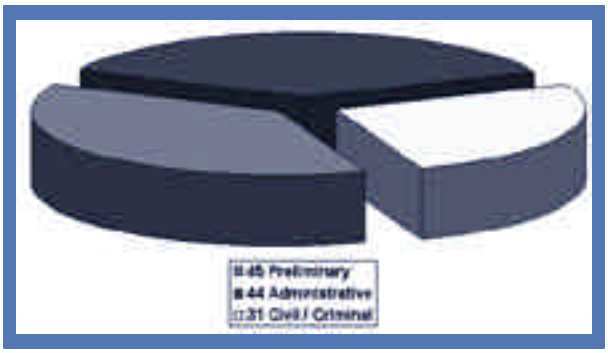
The majority of our administrative cases involve allegations of research misconduct. Under our research misconduct regulation, such cases can involve three steps: inquiry, investigation, and adjudication. An inquiry consists of initial information-gathering and fact-finding to determine if the allegations are substantive. If we find that an allegation lacks substance, we close the case. If we determine that an allegation has substance, we initiate an investigation. If, after investigation, we believe research misconduct has occurred, we send a recommendation to NSF's Deputy Director for adjudication.

We closed 17 administrative cases at the inquiry stage this period. These cases involved subjects at public colleges and universities (10), private universities (4), private industry (2), and government agencies (1). The primary allegations in these cases

included intellectual theft (6), false statements or other misrepresentations (4), verbatim plagiarism (3), administrative issues (2), abuse of colleagues (1), and retaliation (1). We contacted subjects in 8 of these cases and we requested expert opinions in 2 cases.

We closed 3 administrative cases after investigation. NSF's Deputy Director made findings of research misconduct in two of these cases and took action consistent with our recommendations (see page 26). We closed the other administrative investigation and converted it to a criminal investigation.

In other administrative case actions this period, we deferred 1 inquiry to a grantee and forwarded results of 2 investigations to NSF's Deputy Director for adjudication.



Cases Processed in this Semiannual Period

Civil/Criminal Cases

We closed 8 civil/criminal cases that involved possible violations of laws on false statements (3), embezzlement or theft (3), or fraud (2). Three of these cases resulted in convictions. In one, a federal court convicted two subjects for major fraud. In another, a federal court convicted one subject of a misdemeanor count of embezzlement. In the third, a state court convicted a subject for two counts related to embezzlement and fraud.

Outreach Activities

Our Outreach program is designed to serve the needs of NSF and the communities it supports. We engage NSF grantees and employees in discussions and present information regarding our office, NSF, award compliance and integrity issues, misconduct in science, and the new Federal research misconduct policy at professional society meetings, conferences, annual meetings, poster sessions, university briefings, and NSF training sessions. We strive to reach all geographic communities in order to obtain feedback from the variety of communities we serve and to ensure equal access to information.

OIG Open House

As part of our ongoing efforts to reach out to the Foundation, we hosted an open house for NSF staff, management and National Science Board members on October 10, 2000. This event gave us another opportunity to describe the office, its organization, and its mission. In her opening remarks, the Inspector General described some recent results of audits and investigations, and ways that our office has been able to assist management. This event also coincided with the unveiling of our new webpage, which provides useful information regarding our functions and staff. We were pleased to have the Director of NSF, Dr. Rita R. Colwell, cut the virtual ribbon and take our webpage "live." We then provided a virtual tour of our office through a demonstration of the webpage's features.

While our offices are always open to NSF staff, on this day we provided a unique look into our office. OIG staff prepared special displays of audit, investigation, and outreach efforts, and were on-hand to answer any questions. In anticipation of an upcoming conference on research integrity, we displayed drafts of posters on Outreach and Duplicate Publications to be presented during the conference and were very pleased with the excellent feedback we received. We are very excited over the success of the open house. We not only had the opportunity to interact with staff from all across the Foundation, but also provided useful information in a fun environment. We look forward to hosting similar events in the future.

HIGHLIGHTS

OIG Assists Chinese Science Agency

The National Natural Science Foundation of China (NSFC) invited the Inspector General (IG) to assist it in developing policies and procedures for undertaking financial and performance audits and investigations of allegations of misconduct in science. Founded in 1986 with the approval of the State Council of China, the NSFC awards grants to principal investigators at various research institutions throughout China. The NSFC faces oversight challenges very similar to NSF's, although the operating environment is quite different.

The NSF Inspector General, Associate IG for Audit, and Associate IG for Investigations with Chen Jiaer, President of the National Natural Science Foundation of China, and members of its Oversight Committee in November 2000.

The NSFC supports basic research in science and technology. It holds competitions to identify the best ideas for research grants, using review panels of scientists as evaluators. The NSFC is establishing a basis for expanded international cooperation and participation in global scientific projects. As of 2000, NSFC had 52 collaborative agreements and memoranda of understanding with science funding organizations and research institutions in 36 countries and regions throughout the world.

NSFC recently established an Inspection Committee of distinguished Chinese scientists to oversee improvement in its auditing and investigative capabilities. The efforts are directed at improving internal standards and understanding better how research accountability is achieved in science and engineering. In this context, the NSF IG developed a strategy to provide technical assistance to the Inspection Committee. The IG, Associate IG for Audit, and the Associate IG for Investigations traveled to Beijing in November for a week of seminars, workshops, and discussions. Over 100 research scientists and engineers attended the general sessions. NSFC staff focused on learning specific audit standards and investigative practices.

The NSFC and its Inspection Committee has asked for continuing assistance. The NSF OIG plans to host an NSFC intern in 2002 to study financial auditing. Further exchange of information is planned on ethics in research, including issues related to technology transfer and conflicts of interests. We are exploring various ways to accomplish this exchange over the next several months. It is believed that these topics will gain importance as international collaborations grow in number and available funding grows in size.

The continuing relationship with the NSFC will advance understanding of the cultural and historic context in which our international partners conduct research and provide insight into U.S. expectations and standards with respect to basic research accountability. The value of the relationship will be realized over the long-term as Chinese scientists become more engaged in collaborative research projects. The NSF IG wishes to thank the Department of State IG for the assistance given in this endeavor.

OSTP Research Misconduct Policy

In December 2000, the Office of Science and Technology Policy (OSTP) published the final version of the new Federal Policy on Research Misconduct in the ***Federal Register*** (65 FR 76260, Dec. 6, 2000). The Policy, developed by the National Science and Technology Council, requires each federal agency that sponsors research to establish policies and procedures to respond to allegations of research misconduct in their intramural and extramural research programs. The OSTP interagency Research Misconduct Policy Implementation Group meets regularly to facilitate implementation of the Policy. A subcommittee of this Group, with membership from the Office of Research Integrity (ORI), NSF management, the Veterans Administration, the Department of Agriculture, the National Air and Space Administration, and our office, organized an OSTP-hosted Research Misconduct Policy Implementation Workshop in February 2001. The workshop, attended by approximately 80 representatives from 25 agencies and Offices of Inspectors General, provided an opportunity for agency officials to discuss the requirements of the Policy, learn from the experience of agencies already active in investigating allegations of research misconduct, and address issues they may confront in implementing the Policy. OIG staff presented information on techniques for handling civil/criminal and administrative cases, and on educational efforts to prevent misconduct. The IG briefed attendees on the efforts of the President's Council on Integrity and Efficiency (PCIE) and the Executive Council on Integrity and Efficiency (ECIE) Misconduct in Research Working Group (MIRWG), and its efforts to work with agencies in developing investigative processes. NSF staff made presentations on implementation of the policy and the appropriateness of administrative actions.

Also in this period, the MIRWG , which is chaired by the NSF IG, drafted a supplement for the ***Quality Standards for Investigations*** to address the process for handling research misconduct allegations. The draft supplement was circulated to all working group members and modified based on these comments. The supplement is now

available on the IGNET for OIGs and agencies to use as guidance. The MIRWG continued discussions on training and mechanisms for assisting agency-led investigations.

We also organized a panel of NSF and other government agency representatives for the Society for Research Administrators' annual meeting in St. Louis. The panel discussed implementation of the Policy and features of quality investigations. As a member of a panel discussing compliance from a federal perspective, the IG emphasized issues of compliance for administrative, financial, and research management staff, including conflicts of interests, lobbying, patent disclosure, human subjects, animal welfare, and cost sharing. With representatives from OSTP and ORI, OIG staff discussed the Policy at the National Consortium of University Research Administrators' (NCURA) annual meeting in Washington DC in November 2000. We also described the new OSTP policy and our approaches to investigations at the initial meeting of the Institute of Medicine's Committee to Assess Integrity in Research Environments. We have offered the committee access to misconduct case information to assist its efforts.

Integrity of Awards' Systems and the Awards Process

Recently, we have encountered increased interest in discussion of research management issues and potential pitfalls, particularly regarding human subjects review, Institutional Review Boards, animal welfare, radiation safety, biosafety, collection permits, and environmental permits. In the areas of administrative and financial management, we have had increased discussions regarding change or absence of a principal investigator, filing of progress and final reports, conflicts of interests, lobbying, patent disclosure, training requirements, systems management as described by OMB, financial circulars, contracts and subcontracts, and cost sharing. In particular, audiences have requested clarification regarding principal investigator and awardee responsibilities.

For example, at the winter meeting of the University Consortium for Geographic Information Science, we provided a short program on NSF policies about contacting members of Congress, lobbying disclosure and certification requirements, and the laws prohibiting the use of federal funds for lobbying.

At a site visit to NSF by National Council of University Research Administrators (NCURA) member representatives, we presented information relating to audit focus, risk-based auditing, and concerns regarding cost sharing. We discussed these issues in conjunction with representatives from the Department of Health and Human Services and the Defense Contract Audit Agency to provide NCURA members with insight into how different agencies approach the same issues.

At a meeting of the National Association of College and University Attorneys, we focused on compliance issues that can result in substantial financial liability when breached by universities, such as program income, cost sharing, conflicts of interests, and cost overruns on large construction projects. We also discussed briefly patent disclosure issues and the new federal research misconduct policy.

Research Ethics and Allegations of Misconduct in Science

We continued to conduct seminars for students, administrators, and principal investigators on ethical dilemmas, on Federal and NSF policies on handling allegations of misconduct in science, and on issues related to assuring the integrity of NSF awards. In our discussions, students' questions often focused on understanding the significance of intent in assessing ethical lapses and actions taken by NSF. At one university, we met with administrators and discussed the university's misconduct policy and recent developments in federal policies and laws that relate to misconduct. Our seminars attract students, principal investigators, faculty, and representatives from general counsel offices, as well as "research standards" and "compliance" officers, who are university officials responsible for administrative and ethical compliance. During this semiannual period, we met with students, faculty, administrators, and investigators at universities in Alabama, Delaware, Texas, Wisconsin, and Washington, DC.

At NSF's Regional Grants Conference at Purdue University, OIG staff and NSF representatives addressed NSF award administration issues, NSF's definition of misconduct in science, and our office's procedures for handling allegations of misconduct. We also discussed research ethics and compliance issues with members of The Grant Resource Center at a meeting hosted by the American Association of State Colleges and Universities and at an NSF site visit held during the meeting. Attendees were particularly interested in awardee responsibilities regarding duplicate proposal submissions and the accuracy of current and pending support statements.

At a forum hosted by Sigma Xi, The Scientific Honor Society, we joined a panel discussing the new federal policy on research misconduct, addressed ethical dilemmas, and discussed practical solutions for research managers faced with ethical dilemmas.

We presented a workshop on Ethical Dilemmas in Research at the American Indian Higher Education Consortium 20th Annual Conference in Cloquet, Minnesota. This conference is hosted by tribal and community colleges, whose students are approximately 85 percent Native American. We explained how interested students and principal investigators could obtain funding from NSF through awards and fellowships, what constitutes research misconduct under NSF rules, and the procedures our office follows in investigating allegations of wrongdoing. We also moderated a role-playing exercise in which workshop participants discussed authorship rights.

We presented poster sessions reviewing the practice of self-plagiarism, or printing the same article in multiple publications, at the Conference on Research Integrity hosted by the Office of Research Integrity in November 2000. We also presented our poster on self-plagiarism and discussed potential problems in receiving funding under NSF's Small Business Innovation Research program at the Design, Manufacturing and Industrial Innovation Grantees Conference in Tampa, Florida. This conference is attended primarily by awardees who receive SBIR funding through NSF's Engineering Directorate. We also discussed general compliance issues at a meeting of a group of awardees funded by NSF's Education and Human Resources Directorate.

As part of our ongoing efforts to reach appropriate audiences, we are in discussions with representatives from the Council on Government Relations regarding our joint interests in effective compliance system programs that monitor the proposal submission process.

Feedback After Deferral

We also continue to seek feedback from institutions to improve the assistance we provide in the deferral of misconduct cases. We find that meeting with a university after a deferral of investigation is useful for learning about problems that were encountered, which enables us to address those issues preemptively.

Conflict of Interests for NSF Employees

We assisted in providing information to NSF employees regarding conflicts of interests at NSF's mandatory Conflict of Interests (COI) briefings and at program management seminars. In the COI briefings, we encourage employees to use NSF procedures to clear all potential conflicts.

At program management seminars, we highlight issues with case examples in which we have found a COI. We also explain our office's role in investigating allegations of fraud, waste, abuse, and misconduct in science. We encourage NSF employees to refer allegations of wrongdoing regarding NSF programs to us and to contact us regarding any concerns of their own. We have begun to see the results of engaging in these discussions as recently opened cases involved information brought to our attention after our presentations to NSF employees.

Statistical Data

Audit Reports Issued with Recommendations for Better use of Funds

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

Audit Reports Issued With Questioned Costs

	Number of Reports	Questioned Costs	Unsupported Costs
A. For which no management decision has been made by the commencement of the reporting period	18	$6,000,536	$2,886,525
B. That were issued during the reporting period	16	$999,547	$478,031
C. Adjustment related to prior recommendations	0	0	0
Subtotal of A+B+C	34	$7,000,083	$3,364,556
D. For which a management decision was made during the reporting period	17	$5,359,407	$2,886,525
i) dollar value of disallowed costs	N/A	$921,853	N/A
ii) dollar value of costs not disallowed	N/A	$4,437,554	N/A
E. For which no management decision had been made by the end of the reporting period	17	$1,640,676	$478,031
For which no management decision was made within 6 months of issuance	1	$641,129	0

Additional Performance Information

As required by the Inspector General Act of 1978, we provide tables in each Semiannual Report to the Congress that give statistical information on work conducted by our audit and investigations units. We developed two other tables to provide additional insights about the work of our office: "Cost-Sharing Shortfalls" and "Internal NSF Management Recommendations."

Cost-Sharing Shortfalls – NSF seeks to leverage its resources by acting as a catalyst, promoting partnerships, and, in some cases, obligating grantees to contribute substantial non-federal resources to a project. When NSF award documents require substantial cost sharing, we seek to determine whether grantees are in fact providing promised resources from non-federal sources.

We have two categories of cost-sharing shortfalls. Shortfalls occurring during the life of a project indicate that the grantee may not be able to provide all promised resources from non-federal sources before completing the project. Shortfalls that remain when a project is complete demonstrate that a grantee has in fact not met cost-sharing obligations. These findings result in formal questioned costs. The table on page 47 provides statistical information about shortfalls occurring during the course of a project and at the completion of the project.

Internal NSF Management Recommendations – OIG staff members regularly review NSF's internal operations. These reviews often result in recommendations that are designed to improve the efficiency and effectiveness of NSF operations.

We routinely track these internal management recommendations and report to NSF's Director and Deputy Director quarterly about the status of our recommendations. The table on page 48 provides statistical information about the status of all recommendations that involve NSF's internal operations.

Audit Reports Involving Cost-Sharing Shortfalls

	Number of Reports	Cost-Sharing Promised	At Risk of Cost Sharing Shortfall (Ongoing Project)	Actual Cost Sharing Shortfalls (Completed Project)
A. Reports with monetary findings for which no management decision has been made by the beginning of the reporting period:	9	$24,383,764	$10,388,386	$2,456,509
B. Reports with monetary findings that were issued during the reporting period:	5	$3,789,774	$799,590	$70,421
C. Adjustments related to prior recommendations	N/A	0	0	0
Total of Reports with Cost Sharing Findings (A+B+C)	14	$28,173,538	$11,187,976	$2,526,930
D. For which a management decision was made during the reporting period:	10	$25,155,264		
1. Dollar value of cost-sharing shortfall that grantee agreed to provide.	N/A	N/A	$10,696,517	$69,244
2. Dollar value of cost-sharing shortfall that management waived	N/A	N/A	0	$2,387,265
E. Reports with monetary findings for which no management decision has been made by the end of the reporting period.	4	$3,018,274	$491,459	$70,421

Status of Recommendations that Involve Internal NSF Management Operations

Open Recommendations	
Recommendations Open at the Beginning of the Reporting Period	12
New Recommendations Made During Reporting Period	11
Total Recommendations to be Addressed	23
Management Resolution of Recommendations[1]	
Awaiting Resolution	11
Resolved Consistent With OIG Recommendations	12
Management Decision That No Action is Required	0
Final Action on OIG Recommendations	
Final Action Completed	10
Recommendations Open at End of Period	13
Aging of Open Recommendations	
Awaiting Management Resolution:	
0 through 6 months	11
7 through 12 months	0
More than 12 months	0
Awaiting Final Action After Resolution[2]	
0 through 6 months	2
7 through 12 months	0
13 through 18 months	0

[1] "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.

[2] "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
01-1001	Research association	$79,467	$0	$0	$0
01-1002	Software company	$14,242	$14,242	$0	$0
01-1003	Science association	$40,235	$20,714	$0	$0
01-1004	Native American association	$421,852	$393,681	$0	$0
01-1005	Computer research company	$54,478	$49,394	$0	$0
01-1006	State department of education	$0	$0	$0	$0
01-1007	State college	$20,423	$0	$0	$0
01-1008	City school system	$0	$0	$0	$0
01-1009	Research company	$84,576	$0	$0	$0
01-2001	Project	$0	$0	$0	$0
01-2002	Review	$0	$0	$0	$0
01-2003	Financial report	$0	$0	$0	$0
01-2004	Quality control review	$0	$0	$0	$0
01-6001	University	$134,069	$0	$0	$0
	Total:	$849,342	$478,031	$0	$0

NSF-Cognizant Reports

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
01-4001	Research station	$0	$0	$0
01-4002	Science academy	$549	$0	$0
01-4003	Laboratory	$14,318	$0	$0
01-4004	Institute	$28,150	$0	$0
01-4005	Radio company	$0	$0	$0
01-4006	Education association	$45,942	$0	$0
01-4007	University association	$0	$0	$0
01-4008	Society	$0	$0	$0
01-4009	Institute	$0	$0	$0
01-4010	Zoological society	$0	$0	$0
01-4011	Research association	$0	$0	$0
01-4012	Education center	$0	$0	$0
01-4013	University association	$0	$0	$0
01-4014	Science education institute	$0	$0	$0
	Total:	$88,959	$0	$0

Other Federal Audits

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
01-5022	State government	$0	$0	$491,459
01-5024	Computer science institute	$11,297	$0	N/A
01-5025	University	$16,674	$0	N/A
01-5026	State government	$3,613	$0	$308,131
01-5031	University	$29,662	$0	N/A
	Total	$61,246	$0	$799,590

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 is one report remaining open for a period longer than six months. Eighteen of the nineteen reports remaining open at the end of the last reporting period have been closed. The status of recommendations that involve internal NSF management is described on page 48.

Open Report Involving Questioned Costs:

Report Number	Title	Date to CPO	Dollar Value	Status
00-6008	Contractor	8/22/00	$641,129	1

Status Codes:

1 = Resolution is progressing with final action expected in next reporting period.
2 = Information requested from grantee not yet received in full.
3 = Further negotiations required before resolution.

Investigations Case Activity

	Civil/Criminal Activity	Administrative Activity
Active Cases From Previous Reporting Period	24	30
New Cases	7	14
Closed Cases	8	20
Active Cases	23	24

Investigations Case Statistics

	Civil/Criminal Statistics
New Referrals	1
Criminal Convictions/Pleas	3
Civil Settlements	0
Administrative Actions	1
Investigative Recoveries[3]	$108,903.60

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

Administrative Statistics

Cases Forwarded to the Office of the Director for Adjudication	2
Cases Reported in Prior Periods With No Adjudication by the Office of the Director	1[4]
Number of Debarments in Effect During This Period	5
Assurances and Certifications Received[5]	
Number of Cases Requiring Assurances During This Period	7[6]
Number of Cases Requiring Certifications During This Period	8
Assurances Received During This Period	0
Certifications Received During This Period	0

[4] This case is described in our September 2000 Semiannual Report, page 25.

[5] NSF accompanies some findings of misconduct in science with a certification and/or assurance requirement. For a specified period, the subject must confidentially submit to the Associate Inspector General for Investigations a personal certification and/or institutional assurance that any newly submitted NSF proposal does not contain anything that violates NSF's regulation on misconduct in science and engineering. These certifications and assurances remain in OIG and are not known to, or available to, NSF program officials.

[6] One of these cases is described in our September 2000 Report, page 26. Although ultimately not considered a misconduct case, NSF required the subject and his institution to submit to NSF for 3 years assurances with any proposals involving biohazardous research.

Acronyms

ASA	Antarctic Support Associates
CAAR	Cost Analysis and Audit Resolution
CFO	Chief Financial Officer
COI	Conflict of Interests
DAEO	Designated Agency Ethics Official
DCAA	Defense Contract Audit Agency
DCIS	The Defense Criminal Investigative Service
DMII	Design, Manufacturing and Industrial Innovation
ECIE	Executive Council on Integrity and Efficiency
EPSCoR	Experimental Program to Stimulate Competitive Research
ERC	Engineering Research Centers
IDS	International Database Systems
MRE	Major Research Equipment
NASA	National Aeronautics and Space Administration
NCURA	The National Consortium of University Research Administrators
NCURA	The National Council of University Research Administrators
NSFC	The National Natural Science Foundation of China
OMB	The Office of Management and Budget
OPP	Office of Polar Programs
ORI	The Office of Research Integrity
OSTP	The Office of Science and Technology Policy
PCIE	President's Council on Integrity and Efficiency
PI	Principal Investigator
R & RA	Research and Related Activities
USAP	United States Antarctic Program
SBIR	Small Business Innovation Research
SPFE	South Pole Safety and Environmental
SPSM	South Pole Station Modernization

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March 2001