

Semiannual Report to the Congress

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Office of Inspector General

National Science Foundation

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Letter to the National Science Board and the Congress

This report describes our activities and accomplishments from April through September 1996. Section 5 of the Inspector General Act of 1978, as amended, requires that the National Science Board transmit this report to the Congress within 30 days of its receipt along with any comments the Board may wish to make.

We worked hard in this reporting period to compensate for work lost during the FY 1996 agency closure. In October 1996, just after the close of this reporting period, we contracted with a private-sector accounting firm for services necessary to audit the financial statements NSF will prepare under the Chief Financial Officers Act. We expect to complete our first audit of the financial statements by March 1997. We have also begun incorporating the management and performance approaches articulated in the Government Performance and Results Act into our audits and oversight reviews. Here, our aim is to help the Foundation monitor, and, when appropriate, improve programmatic and managerial performance.

NSF has a new acting Deputy Director, Dr. Joseph Bordogna. We join the agency in expressing our appreciation to him for his willingness to serve in this capacity and, in particular, for his interest in the OIG's activities. We look forward to working with him and other NSF staff as we meet the challenges and take advantage of the opportunities that present themselves in this fiscal year.

Linda G. Sundro
Inspector General
October 31, 1996

Executive Summary

Financial Audits

We identified over \$30 million in funds that can be better used to support research and education, and we documented \$500,000 in questioned costs (pages 67 and 68).

Most states do not impose sales taxes on universities that purchase equipment with NSF funds, but five states do charge sales taxes. By legally avoiding state sales taxes, NSF's funded institutions can reallocate more than \$20 million over 5 years to support research and education (page 2).

NSF could meet goals imposed by the Government Performance and Results Act and save about \$1.5 million per year by making most information about the Agency and its programs available via the Internet, rather than the printed page. Most funds saved could be reallocated directly to research (page 5).

By reducing incidental costs, an astronomy observatory can realize over \$1 million in cost savings (page 8).

Misconduct in Science

We reviewed safeguards NSF has in place to resolve misconduct allegations (page 34).

We referred two reports with recommendations for findings of misconduct in science to NSF's Deputy Director for adjudication, and the Deputy Director issued findings of misconduct in two reports we sent in an earlier period (pages 37 and 42).

Investigations

Investigations resulted in the return of over \$250,000 in grant funds. To prevent further abuse in the federal excess property program, NSF will implement procedures to ensure that proceeds from the sale of excess property are used to support scientific and educational projects (page 24).

Three cases pending at the Department of Justice involve companies that received funding under the Small Business Innovation Research Program (page 28).

Oversight Activities Including Inspections

NSF management will incorporate into new regulations a conflict-of-interest rule that will prevent program officers from negotiating with NSF officials about grants or any other matter for 1 year after leaving NSF (page 50).

Our first inspection involving NSF's support of a State's Experimental Program to Stimulate Competitive Research identified many indicators of success. However, we did recommend that NSF and the State mutually establish measures for results and that the State's fiscal agent execute subcontract agreements with participant institutions (page 54).

An inspection of an Urban Systemic Initiative found that NSF closely monitored the awardee's efforts to improve science and mathematics education. But, the inspection also raised questions about how the awardee calculated and monitored its cost sharing and participant support commitments (page 58).

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Acronyms

ADP	Advanced Development Program
AOR	Authorized Organizational Representative
BIO	Directorate for Biological Sciences
COLA	Cost of Living Allowance
DAS	Division of Administrative Services
DCAA	Defense Contract Audit Agency
DGA	Division of Grants and Agreements
DoEd	Department of Education
DoD	Department of Defense
EHR	Directorate for Education and Human Resources
EPSCoR	Experimental Program to Stimulate Competitive Research
FBI	Federal Bureau of Investigation
FFRDC	Federally Funded Research and Development Center
GAO	General Accounting Office
GPRA	Government Performance and Results Act
GRT	Graduate Research Traineeship award
GSA	General Services Administration
HBCU	Historically Black Colleges and Universities
HHS	Department of Health and Human Services
HRD	Human Resource Development
HRM	Division of Human Resources
IDB	Information Dissemination Branch
INS	Immigration and Naturalization Service
NAFTA	North American Free Trade Agreement
NIH	National Institutes of Health
NOAA	National Oceanic and Atmospheric Administration
OCR	Office of Civil Rights
ODP	Ocean Drilling Project
OGE	Office of Government Ethics
OMB	Office of Management and Budget
ORI	Office of Research Integrity
PAR	Personnel Activity Report
PCIE	President's Council on Integrity and Efficiency
PI	Principal Investigator
SBE	Directorate for Social, Behavioral, and Economic Sciences
SBIR	Small Business Innovation Research
TN	Trade NAFTA visa
USI	Urban Systemic Initiative

Reporting Requirements

This table cross-references the reporting requirements prescribed by the Inspector General Act of 1978, as amended, to the specific pages in the reports where they are addressed.

Requirements		Page
Section 4(a)(2)	Review of Legislation and Regulation	Throughout
Section 5(a)(1)	Significant Problems, Abuses, and Deficiencies	Throughout
Section 5(a)(2)	Recommendations With Respect to Significant Problems, Abuses and Deficiencies	Throughout
Section 5(a)(3)	Prior Significant Recommendations on Which Corrective Action Has Not Been Completed	77
Section 5(a)(4)	Matters Referred to Prosecutive Authorities	24
Section 5(a)(5)	Summary of Instances Where Information Was Refused	None to Report This Period
Section 5(a)(6)	List of Audit Reports	72
Section 5(a)(7)	Summary of Each Particularly Significant Report	Throughout
Section 5(a)(8)	Statistical Table Showing Number of Reports and Dollar Value of Questioned Costs	68
Section 5(a)(9)	Statistical Table Showing Number of Reports and Dollar Value of Recommendations That Funds Be Put to Better Use	67
Section 5(a)(10)	Summary of Each Audit Issued Before This Reporting Period for Which No Management Decision Was Made by The End of the Reporting Period	77
Section 5(a)(11)	Significant Management Decisions That Were Revised	None to Report This Period
Section 5(a)(12)	Significant Management Decisions With Which The Inspector General Disagrees	None to Report This Period

AUDIT

The Office of Audit is responsible for auditing grants, contracts, and cooperative agreements funded by NSF's programs. It reviews agency operations and ensures that financial, administrative, and program aspects of agency operations are reviewed. It also conducts the annual audit of NSF's financial statements, which encompass approximately \$3.2 billion. The Office evaluates internal controls, reviews data processing systems, and follows up on the implementation of recommendations included in audit reports. In addition, the Office assists in the financial, internal control, and compliance portions of OIG inspections. All audit reports are referred to NSF management for action or information. The Office of Audit advises and assists NSF in resolving audit recommendations. The Office also acts as a liaison between NSF and audit groups from the private sector and other federal agencies by arranging for special reviews, obtaining information, and providing technical advice. The Office of Audit provides speakers and staff assistance at seminars and courses sponsored by NSF and other federal agencies and at related professional and scientific meetings.

PROMOTING EFFICIENT USE OF NSF FUNDS

One of OIG's fundamental objectives under the Inspector General Act is to help NSF increase the cost-effectiveness of its expenditures. Specifically, the Inspector General Act requires that we "provide leadership and coordination and recommend policies for activities designed to promote economy, efficiency, and effectiveness in the administration of" NSF's programs and operations. Such activities will be increasingly important as budgetary pressures mount.

By Avoiding Sales Taxes, NSF's Funded Institutions Can Use More Grant Funds to Support Research

We estimate that, during FY 1994, at least \$4.2 million was charged to NSF awards for state sales taxes. The Comptroller General has determined that it is permissible to use federal grant funds to pay state sales taxes as long as sales tax payments are not expressly prohibited by the terms of the grant agreement. Since payment of sales taxes does nothing to directly further research and education in science and engineering, we conducted a review to determine how sales taxes could legally be avoided to use grant funds for purposes that would further NSF's objectives. Legal avoidance of state sales taxes would enable NSF to save approximately \$20 million in program funds over 5 years. We concluded that there are several mechanisms that could be used to achieve this goal, without imposing undue burdens either on NSF's program staff or on NSF's funded institutions.

Disparities in State Sales Tax Payments

Only five states require that their colleges and universities pay sales taxes, and one of those states is responsible for more than 80 percent of state sales taxes charged to NSF awards. Applicants for NSF assistance from these five states must add state sales tax costs to their budgets when they submit proposals to NSF. Since proposals for funding are evaluated both on their cost and the strength of their research programs, the competitive disadvantage of having to increase the size of the budget to pay state sales taxes is evident.

Some proposal reviewers affiliated with institutions in states that do not levy sales taxes on colleges and universities have commented negatively in their reviews about the inclusion of state sales taxes in proposal budgets submitted by colleagues affiliated with institutions that are subject to such taxes. The distorting effect of state sales tax payments on research budgets is particularly apparent when research

collaborations include some institutions that are subject to state sales taxes and some not. For one project we reviewed, NSF paid an additional \$140,000 for state sales tax to one institution, while no state sales tax was paid on comparable work for the same project at an institution in a different state. We believe it would be equitable for NSF management to attempt to remove this competitive disadvantage for institutions in the states subject to sales tax.

Some awardees have demonstrated that they understand the importance of structuring large transactions to minimize sales tax payments; however, the cumulative amount of sales tax paid on smaller purchases is also substantial. We estimate that about one-third of the sales taxes paid are associated with the purchase of materials and supplies. The cumulative effect of sales taxes on small purchases is more likely to be recognized by institutions that handle many projects, than by individuals who are PIs on a particular project.

Avoiding State Sales Tax Payments

We recommended to NSF that state sales tax payments be expressly excluded as an allowable cost under NSF awards. We believe the burden placed on grantees in the five states that levy sales taxes on their colleges and

universities to absorb or legally avoid these taxes is outweighed by the cost savings to NSF and the removal of the competitive disadvantage associated with the evaluation of proposals whose budgets include sales tax expenses.

The necessity to absorb state sales tax payments would encourage NSF's awardees to use creative strategies to legally avoid these tax payments. NSF program staff can be helpful to grantees in developing these strategies. For example, an awardee might, with the concurrence of NSF program staff, choose to avoid sales taxes by structuring a major equipment purchase so that title vests in NSF, rather than in the awardee.

We also recommended that NSF modify its approach to cost sharing when state sales tax costs are included in an award budget. NSF presently imposes a 1-percent cost-sharing requirement on all unsolicited grants, and some NSF programs have much higher cost-sharing requirements. We recommended that NSF allow grantee institutions the option of counting sales tax payments toward meeting their cost-sharing requirements. This could encourage awardees who choose to pay (rather than legally avoid) the state sales tax to contribute that amount from nonfederal

sources. We recognize, however, that institutions that choose to cost share state sales tax payments might then reduce other kinds of cost sharing by comparable amounts. We encouraged NSF to consider carefully the elements of proposed cost sharing when evaluating proposals for funding.

We recommended that NSF send an Important Notice to awardee institutions encouraging them to become familiar with, and to take advantage of, existing exemptions from state sales taxes. Finally, we recommended that NSF pursue federal and state legislative remedies to exempt purchases under NSF awards from state sales taxes.

If these recommendations are implemented, we estimate that, beginning in FY 1997, NSF would be able to allocate over \$4 million in additional funds annually for science and engineering research and education. NSF management is reviewing our recommendations.

Avoiding Trade Duties

During our review of state sales taxes charged under NSF awards, we learned of a related situation in which NSF funds might have been used to pay import duties to the U.S.

Department of the Treasury. Import duties of \$1.1 million were estimated for parts of a state-of-the-art, high-performance telescope (to be built in the United States by an international partnership) that are being made or assembled overseas. Payment of this tariff would have transferred \$1.1 million of NSF funds to the Department of the Treasury to further no purpose associated with science or engineering. We recommended that NSF management pursue a legislative remedy to avoid payment of this tariff, and they did so. At the end of the reporting period, as part of the Miscellaneous Trade and Technical Corrections Act of 1996, legislation was enacted that exempted the telescope project from tariff duties.

By Disseminating Information Primarily on the Internet, NSF Can Allocate Substantial Additional Funds to Science

Electronic Information Dissemination as a Goal Under GPRA

The Government Performance and Results Act (GPRA) does not define the Inspector General's role in the agency's strategic planning or goal-setting processes. The Office of Management and Budget (OMB) has, however, encouraged Inspectors General to work with their agencies in identifying achievable and quantifiable goals that will materially improve both program performance and internal management. While it is difficult to set goals under GPRA that track the success of NSF-funded research and education activities, it is easier to specify goals related to the increased efficiency and effective management of the agency. These include activities that seek to improve communication with awardees, applicants for assistance, and other "customers" as well as those that expedite award actions. GPRA contemplates that improvements in this area will include actions that provide effective service to customers while containing or reducing the cost to the government. Building on GPRA principles, the Information Technology Management Reform Act of 1996 requires

that each agency "establish goals for improving the efficiency and effectiveness of agency operations and, as appropriate, the delivery of services to the public through the effective use of information technology."

Accordingly, we conducted a review designed to suggest ways of applying GPRA principles to information dissemination at NSF.

NSF deserves substantial credit for making a large amount of information available both via its World Wide Web page and the Science and Technology Information System. It has also devoted significant resources to FastLane, the project to build an electronic proposal submission process. However, to date, these efforts have not translated into significant cost savings because electronic systems have largely *supplemented* and not *replaced* paper documents.

We reviewed NSF's publishing activities, with a particular focus on electronic publishing. We found that NSF, the agency most responsible for promoting the expansion of the Internet, still relies primarily on mailing printed documents—at an annual cost of approximately \$1.9 million for printing and \$1.3 million for postage—to disseminate information about its programs. Our review indicated that the Information Dissemination

Branch (IDB) of the Division of Administrative Services (DAS) has taken many steps to reduce printing and postage costs and increase the efficiency, efficacy, and quality of the service IDB provides for NSF. IDB is preparing to provide Internet versions of virtually any document NSF publishes, but a decision about how to publish and disseminate any document is made by the individual program, not IDB.

Applicants for NSF's awards are, as a segment of the nation's population, arguably more "wired" than any other. We identified three programs that have begun converting to electronic information dissemination, and they anticipate reductions in printing and mailing costs of 40 to 100 percent. However, because IDB only prints and mails what it is directed to by other NSF components, more substantial cost savings through conversion to electronic dissemination can only be achieved by initiatives beyond IDB's purview.

We believe a situation such as this—where an administrative support component of the agency cannot implement actions that would result in significant cost savings and increased efficacy without explicit approval of the agency's most senior managers—lends itself well to fully articulated GPRA goals.

Accordingly, we recommended that NSF establish an agency-wide goal of reducing the quantity of printed program announcements and other printed information by at least 50 percent by the beginning of FY 2001. We estimate that such a reduction would provide savings of more than \$1.5 million annually in printing and postage costs, which could be used in other ways to more directly support science and engineering research and education.

Further, we recommended that NSF consider formalizing this goal by publicly committing to it through the GPRA process. NSF's long-term GPRA strategic plan should include specific goals for each NSF division, leading to the achievement of the agency-wide goal over the next 3 fiscal years. NSF management is reviewing our recommendations.

**Ocean Drilling Project to Achieve Savings
by Increasing Use of Electronic
Information Dissemination**

In Semiannual Report Number 14 (page 6), we reported on our review of the Ocean Drilling Program (ODP). ODP spends approximately \$2.1 million annually on its publications—which are published by the ODP awardee, entirely separately from NSF’s publications. We recommended that ODP modify its publication activities to phase out one publication (the *Scientific Results*) altogether and convert the other (the *Initial Reports*) exclusively to an electronic version available on CD-ROM and over the Internet. We estimated that ODP could save more than \$1 million annually beginning in FY 1999. Because ODP is a cooperative international project, NSF management forwarded our recommendations for consideration by the appropriate international advisory committees.

In this reporting period, ODP accepted a recommendation by its international advisory committees to implement an alternative plan that will expand electronic access while maintaining some printed volumes. This approach will not save as much as contemplated by our recommendations, but ODP anticipates that, once implemented, it will save approximately \$0.8 million annually by the time it is fully implemented in FY 1999, which works out to \$4 million over a 5-year planning period.

Funds to Be Put to Better Use

Funds the Office of Inspector General has identified in an audit recommendation that could be used more efficiently by reducing outlays, deobligating funds, avoiding unnecessary expenditures, or taking other efficiency measures.

Over \$1 Million in Cost Savings at an Observatory Can Be Made Available for Science and Engineering

Our audit responsibilities include oversight of five Federally Funded Research and Development Centers (FFRDC) including two astronomy observatories. During this reporting period, we conducted a review of one of these FFRDCs, which is an observatory. The observatory, which is a national research center for ground-based astronomy and solar physics, is managed and operated by a private association of universities and has three observing sites (two located in the United States and one located overseas). The observatory provides astronomers and research institutions with facilities, services, and support to conduct research in astronomy and related fields. We found four areas where the observatory could reduce incidental costs without eliminating essential services. By reducing these costs, the observatory could increase funds that are available for science. Observatory management agreed with over \$1.3 million in cost savings. Implementation of all of our recommendations would save \$2.2 million.

Overseas Allowance

The observatory pays an allowance to its staff overseas. The allowance is composed of an expatriation premium factor and a differential cost of living allowance (COLA). The expatriation premium factor is used to “facilitate the recruitment and retention of high quality scientific and technical staff members at an isolated overseas post.” The COLA compensates expatriates for the higher costs of living overseas.

Savings Associated With the Expatriation Premium Factor. We recommended that the observatory eliminate the expatriation premium factor it pays its U.S. staff members who work overseas. We recommended this elimination because the observatory’s location cannot be considered a hardship or danger post, and the average length of service suggests that there is no need to provide staff members with incentives to remain overseas. The observatory agreed that our finding had merit for long-term staff members and will ask the consultant who is reevaluating its current compensation practices to propose a new approach. We expect the observatory to save \$168,583 a year and \$842,915 over 5 years.

Savings Associated With the COLA. We believe the rate the observatory used to calculate the COLA was too high since it was based on inaccurate length of service and purchasing assumptions. To calculate a COLA, a retail pricing survey is conducted overseas. Prices for goods and services identified in the survey are then compared to the prices for the same or similar goods and services in the United States.

A standard cost of living rate is usually used for new employees who are unfamiliar with an overseas post. We recommended that the observatory begin using a specialized rate that is much lower than the standard rate it was using. The specialized rate was calculated by the same international services company that provided the observatory its cost of living data. This specialized rate targets those employees who have been overseas for some time and have acquired the sufficient language skills and knowledge of the country's customs to know where to purchase goods and services at less expensive commercial outlets. We found that the average length of service of observatory staff overseas was more than 10 years. Observatory staff also have access to the U.S. embassy commissary for items that are not available in the local market.

As of June 4, 1996, the specialized rate was 63 percent lower than the standard rate the observatory was using. We estimated that, if the observatory uses this specialized rate, which more accurately reflects the experience and knowledge of its staff overseas, the observatory could realize \$141,189 in cost savings a year and \$705,945 over 5 years. Observatory management disagreed with the recommended reduction in the COLA paid to its overseas staff but indicated that it might consider a partial reduction in the COLA, using an alternate rate calculated by the Department of State. If the observatory uses the Department of State's cost of living rates for private U.S. citizens overseas, the savings would total \$70,595 a year and \$352,975 over 5 years.

Government-Owned Housing

The observatory has 29 tenants that occupy government-owned houses at 1 of its U.S. facilities; 24 of the tenants are observatory staff members. These 24 tenants represent about one-half of the employees who work at the facility. The rental rates the observatory computed were less than those that comply with OMB Circular A-45, *Rental and Construction of Government Quarters*. As a result of our recommendations, the observatory will increase its rental revenue by \$95,640 over 5 years. However, the observatory disagreed with an additional \$57,480 in recommended rate increases.

Meal Costs

Staff members at one of the U.S. sites are provided free meals in the observatory's kitchen facilities. We believe sound business practices justify free meals only for those employees the observatory requires to remain at work overnight. All other employees should pay for their meals. Therefore, we recommended that the observatory charge employees for meal costs. We estimate that, if the observatory charged appropriate staff for meals, it would earn an extra \$381,765 over 5 years. Observatory management disagreed with our recommendation, citing management policy and employer convenience.

Newsletter

The observatory publishes a quarterly newsletter that provides information about its activities. About 1,925 newsletters are mailed to subscribers free-of-charge each quarter, and an electronic version is available on the Internet. We recommended that the observatory provide only the electronic version of the newsletter. Observatory management agreed to consider eliminating the summer edition of the newsletter and to work on expanding the capabilities of the electronic version. When that work is complete, observatory management will solicit the views of users about eliminating the paper copy altogether. Elimination of the summer edition of the newsletter should save \$11,197 a year and \$55,985 over 5 years. If the observatory eliminates the paper copy altogether, cost savings would total an additional \$36,331 over 5 years.

We forwarded our memorandum and the observatory's response to our recommendations to NSF management. NSF management will make the final resolution on these findings.

OTHER AUDITS OF ORGANIZATIONS THAT RECEIVE NSF FUNDING

We select organizations and awards for review based on a preliminary assessment of whether it appears these organizations would have difficulty complying with regulations that govern the use of federal funds. By using risk assessment principles, we try to identify those organizations or programs that have the greatest risk for financial irregularities and provide opportunities for the greatest dollar recoveries. This section describes audits of NSF awardees conducted in this reporting period that involve significant questioned costs.

Private Educational Institution Did Not Accomplish Objectives of NSF Awards

We audited two education awards to a private, nonprofit organization that administers a children's museum and provides other educational programs for children. One award, which had a \$480,540 budget, was to support the development of learning materials for elementary school students. The other award, which had a \$31,767 budget, was to videotape and publish the proceedings of a conference on children's museums.

We concluded that the organization's management of these awards was not acceptable and questioned \$337,377 from both awards. The organization commingled NSF funds with funds from other sources in a general account, and its recordkeeping was insufficient. In fact, the organization could not tell us how a large portion of the NSF funds

had been spent. Most of the questioned costs, \$265,846 from both awards, involved claimed personnel costs. The organization could not explain how these funds had been used.

The organization did not complete most of the educational materials it had proposed for the larger award, and it did not finish the documentation for the smaller award.

Although the organization sometimes obtained the assistance of consultants to work on the awards, the consultants did not finish the projects because they were told there was no money to pay them. We believe the organization's inability to pay its consultants and accomplish the awards' goals suggests that the NSF funds were used for other purposes.

We learned that, despite its poor recordkeeping and financial management, the organization spent \$362,047 to hire a private

accounting firm. We also learned that the organization had named NSF as a projected source of repayment of a large bank loan in documents it provided to the bank when it applied for the loan. We inferred that personnel costs the organization claimed—from a grant provided by NSF to fund science education—were used to defray the costs of the accounting firm and to make payments on the bank loan.

We recommended that the organization promptly return the \$337,377 we questioned to NSF. We also recommended that NSF take action to ensure that the organization does not receive any more NSF funds until it has an appropriate accounting system in place and has reimbursed NSF for the questioned costs from its previous awards.

The organization, now under different management, did not dispute our findings and could not provide further information on the use of the NSF funds. The organization explained that it had implemented a new financial management system and retained new accountants and other personnel to properly manage any funds received in the future. The organization also stated that it does not have funds to reimburse NSF for the questioned

costs and therefore it might be forced to close the children's museum if it is required to make this reimbursement. We have no authority to forgive a debt owed to NSF and, accordingly, referred these issues to NSF management for resolution.

Museum Claims Excessive Indirect Costs

NSF awarded \$1,963,176 to a museum and its partners to enhance the teaching of science, mathematics, and technology by drawing upon the resources of science-rich institutions and related businesses and industry. Our review of the grant identified material weaknesses and \$105,108 in questioned costs. The results of our audit are summarized below.

The partners did not maintain time and attendance systems that complied with OMB regulations. Also, a member recovered \$16,578 twice, once by charging the grant a program fee and once by claiming the same costs again as indirect costs. The partners overclaimed indirect costs by \$72,708 either because they claimed indirect costs based on budgeted rather than actual amounts or because they calculated indirect costs at a rate that exceeded the NSF-approved rate. We questioned an additional \$15,822 because of errors in computing wages and fringe benefits

and costs that were inappropriately charged to the grant. NSF will address the questioned costs with the grantee during audit resolution.

Contractor Reduces Claim Against the Government

NSF awarded a contract to assemble, process, store, and ship cargo to on-site facilities in Antarctica. The contractor was also responsible for maintaining the supplies, equipment, research labs, and offices that were on-site.

The contractor submitted a final invoice for the contract for \$341,299. The invoice included \$222,191 in workers' compensation costs for four employees who incurred injuries while working on the contract. A portion of the contractor's claim was for workers' compensation reserves that were never used to cover actual costs. Based on our recommendation, the contractor agreed to reduce its final claim by \$58,381, the amount of the unused reserves.

Questioned Cost

A cost resulting from an alleged violation of law, regulation, or the terms and conditions of the grant, cooperative agreement, or other document governing the expenditure of funds. A cost can also be "questioned" because it is not supported by adequate documentation or because funds have been used for a purpose that appears to be unnecessary or unreasonable.

CONTINUED REVIEWS OF SIGNIFICANT ISSUES

Fees Paid to Nonprofit Atmospheric Research Organization Continue to Grow and Result in Questioned Costs

In Semiannual Report Number 14 (page 14), we provided information on the management fees a nonprofit atmospheric research organization was billing to federal agencies that support research at that organization. We conducted the review on behalf of federal agencies because NSF provides this organization more funds than any other federal agency and, so, has overall audit responsibility for this FFRDC.

The organization asked other federal agencies to pay a fee based on a percentage of the award. In some cases, this fee was as high as 3 percent of the total amount of the award. We estimated that, under this arrangement, fees the government pays will total approximately \$6 million over the next 5 years. Because the organization already receives funding for the direct and indirect costs of research, we recommended that the practice of charging this fee be discontinued. We referred our findings to the Inspectors General at the agencies affected by these fees.

We suggested that, as new agreements between the nonprofit organization and the agencies are negotiated, no new fees be approved. We provided as an alternative to paying no fees, a possible capping of fees at the same percentage NSF pays the nonprofit organization. The capping of fees would save approximately \$5.8 million.

The Inspector General for the Department of Commerce concurred with our recommendations and forwarded that concurrence to the National Oceanic and Atmospheric Administration (NOAA), the agency that provided the awards to the nonprofit organization. In response, NOAA stated that it decided to authorize the payment of a management fee “subject to the three percent limitation and any statutory prohibitions on the use of Federal assistance funds.” Because there is no legislative prohibition on the payment of fees to the organization, this will result in NOAA paying the organization \$3.2 million over the next 5 years. Other agencies advise us that they are still reviewing this matter. We will continue to discuss the payment of the fee with the other affected agencies.

Because the organization will continue to receive substantial fees from the government, we evaluated the institution's uses of the fees once they were collected. The fees are placed in the organization's general fund. The general fund also includes dues from members of the organization and income from intellectual property. Because the revenues in the general fund are commingled, we could not determine the amount of federal funds used for each expenditure from the general fund. However, we estimate that fees the organization receives from the government account for at least half of the organization's general fund revenue. In 1995, the organization used this revenue, which was in large part provided by the government, to purchase \$741,000 in equipment. The organization also charged federal awards for the cost of depreciating this equipment.

Under federal accounting principles, a grant recipient may charge depreciation for general purpose equipment as an indirect cost on federal awards. Recovering the costs of equipment by charging depreciation to an indirect cost pool is allowable and appropriate as long as the government did not originally pay for the equipment.

In this instance, the organization purchased equipment with federal fees and charged the government for depreciation costs for that equipment. Since the organization receives 90 percent of its support from federal agencies, we estimate that it recoups 90 percent of the equipment costs from federal agencies by including the depreciation costs in its indirect cost pools.

The organization confirmed this practice. The organization advised us that "Regarding the depreciation of general purpose equipment (i.e. digital communications equipment, telephone switching equipment, etc), [the organization] has used it's [sic] reserves (i.e. general fund) to finance the purchase of such equipment and has recovered the costs through depreciation expenditures to the appropriate indirect cost pool."

To ensure that the government does not pay for the same equipment more than once, we recommended that NSF not allow the organization to charge depreciation for the equipment as an indirect cost on federal awards. We also recommended that NSF require that the organization account separately for management fees provided by federal agencies and review these accounts and the uses of the fees at least annually. NSF management

decided to discuss the matter with the organization before responding to our recommendations.

Five Small Business Awards Require Additional Oversight

The objective of NSF's Small Business Innovation Research (SBIR) program, which is 1 of 11 federal SBIR programs, is to increase the incentive and opportunity for small firms to undertake cutting-edge, high risk, and high quality scientific, engineering, or science/engineering education research that would have a high potential economic payoff if the research is successful. NSF issues SBIR awards in two phases. Phase I awards provide up to \$75,000 to determine the scientific, technical, and commercial merit and feasibility of ideas. Phase II awards provide up to \$300,000 to pursue ideas developed during Phase I.

NSF has always issued predetermined, fixed-amount awards under Phase I. At the end of FY 1995, NSF extended the fixed-amount award concept to Phase II awards. Under fixed-amount awards, NSF agrees to provide a specific level of support assuming adequate technical progress. Each Phase II award is for

2 years, and awardees receive five NSF payments over the 2-year period if they can continue to demonstrate adequate technical progress. We reviewed estimated costs incurred by 32 Phase II awardees in their first of four Semiannual Reports (October 1, 1995, through March 31, 1996). Specifically, we reviewed estimated costs related to salaries and fringe benefits, subcontractor costs, consultant costs, equipment costs, and indirect costs to identify potential problems before significant award funds were spent. Of \$336,800 in claimed costs, we identified over \$77,700 in questionable expenditures by five SBIR awardees in the first semiannual reporting period.

- Four awardees charged \$36,337 more to their grants for salary costs than they had originally proposed. For example, one awardee charged the salary costs of a senior associate using a salary rate that exceeded the proposed salary rate by 32 percent, which resulted in \$19,000 in excessive salary costs.
- Three awardees charged excessive indirect costs to their awards that NSF did not anticipate. For example, one awardee calculated indirect costs by applying a 53-

percent rate to total direct costs rather than applying a 16.7-percent rate to senior personnel salaries, which resulted in \$16,000 in excessive indirect costs. As a result, \$35,691 that was intended to directly support the research projects was instead applied to indirect costs.

- Two awardees calculated fixed fees at higher percentages than the percentages they proposed, which accounted for \$3,550 in excessive costs. One awardee charged \$2,900 in fixed fees to the award by applying a 7-percent rate to total costs instead of a 2.2-percent rate, as proposed in the budget.
- One awardee incurred \$2,200 in consultant costs based on charges that exceeded the maximum allowable daily rate authorized by Congress. The awardee paid a consultant \$1,000 per day, which exceeded the \$443 maximum daily rate.

As a result of these findings, we question whether adequate funds will be available to complete the proposed research. We estimate that, if the current charging practices continue over the remaining life of the five awards, almost \$300,000 (20 percent of the value of the five awards) will have been spent for

purposes that NSF did not anticipate when it issued the awards. We recommended that SBIR program staff determine the reasons for the increased costs and evaluate the effect the increased costs had on the awards' objectives. We also recommended that, if necessary, awards be terminated, suspended, or reduced to ensure that award funds are expended in a manner that efficiently and effectively supports the goals of the SBIR program. NSF management is reviewing our recommendations.

Our Investigations Section is also reviewing the actions of several SBIR companies. Those investigations are described on page 28 of this Report.

A-133 Audits Beginning to Identify Cost Sharing as an Issue

As part of the federal single audit activities, we receive, review, and accept audits conducted by an institution's auditors as long as the auditors comply with the guidelines in OMB Circular A-133, *Audits of Institutions of Higher Education and Other Non-Profit Institutions*. In these audits, the auditors sample transactions and form opinions on compliance with federal requirements and internal controls. Only issues considered material to the institution's overall financial

position are identified in the financial statements.

Many of the grants NSF awards contain cost-sharing requirements. These requirements obligate the grantee to contribute a specific level of non-NSF funding to a project. Compliance with cost-sharing requirements allows federal money to be more efficiently allocated to research.

When cost-sharing requirements were not specified in award documents as a condition of the grant, the institutions' auditors did not report findings regarding cost sharing, which made it difficult to determine whether institutions were complying with cost-sharing requirements. In response to our recommendations, NSF has begun to include specific language in award documents when the awards are subject to substantial cost-sharing requirements. As a result, auditors are now reviewing cost sharing and reporting findings.

Unfortunately, cost-sharing requirements are rarely "material" and, consequently, are not reflected in the institution's financial statements. So, while auditors at institutions are beginning to identify noncompliance as an issue, the magnitude of the problem is difficult to quantify because the findings are not reflected

in the statements. We do know that, in the last 6 months, we reviewed six A-133 audit reports that identified cost-sharing as an issue at institutions that receive approximately \$70 million of NSF funding annually. The six institutions that were not complying with the cost-sharing requirements agreed to provide the funds during the projects' life and to monitor cost-sharing in the future.

Cost-sharing and leveraging of federal grant funds is a significant issue for NSF. As noted in prior semiannual reports, we continue to emphasize compliance with cost-sharing requirements as an audit issue because of the effect the additional funds can have on research. We also continue to work with NSF to institute processes to identify and remedy situations where cost sharing was proposed and required but not provided.

AUDITS INVOLVING NSF'S INTERNAL OPERATIONS

Chief Financial Officers Act

In this reporting period, the Chief Financial Officer and OIG continued preparing for the compilation and audit of agency-wide FY 1996 financial statements. NSF is 1 of the 24 agencies required by the Government Management Reform Act of 1994 (which amended the Chief Financial Officers Act of 1990) to compile and audit agency-wide financial statements. Our responsibilities under these Acts increased from auditing financial statements for NSF's \$40 million Donations (Trust Fund) Account to auditing NSF's entire \$3.2 billion budget beginning in FY 1996. Without an increase in OIG appropriations to cover the cost of this substantial new requirement, our ability to conduct discretionary internal reviews is reduced. This mandates that we realign existing audit staff and obtain additional funds for external contractors. We plan to award a contract to an independent public accounting firm to assist in the audit of NSF's agency-wide FY 1996 financial statements by the end of October 1996.

During this period, NSF's Chief Financial Officer decided on the content and report format for the FY 1996 financial statements. We could not determine the level of effort needed to audit the statements until this decision was made. Agency-wide financial statements, footnotes to the statements, and supplemental information have been drafted for FY 1995 and for the FY 1996 period up to June 30, 1996. Both the OIG and a public accounting firm, hired by the Chief Financial Officer to compile the financial statements, determined that NSF needed to improve its control and management of property, plant, and equipment. As a result, NSF is performing a physical inventory of on-site property and conducting spot inspections and reconciliations of property held at grantee organizations.

To prepare for our audit of the financial statements, we continued reviews in several key areas including interagency agreements and general ledger maintenance. Revenues from interagency agreements are recorded in NSF's accounting system when they are negotiated rather than when the service is performed and the revenue is earned. We recommended that NSF modify its current procedures to ensure that revenue from interagency agreements is properly reflected in the FY 1996 financial statements. We also reviewed payroll and nonemployee compensation payments made to the same individuals and determined that they were appropriate because the individual's services were under contract before they were hired as NSF staff. In addition, we responded to several U.S. General Accounting Office (GAO) inquiries concerning NSF's financial statements in GAO's effort to combine the agency-wide financial statements into a consolidated government-wide statement for FY 1997.

Review of Information Management

In this reporting period, we continued work on several electronic data processing projects, and we reviewed and commented on a draft consolidated report that describes findings of a President's Council on Integrity and Efficiency (PCIE) review of application software maintenance in federal agencies. The draft report, which is based on findings by our office and other Offices of Inspectors General, contains several recommendations to OMB to improve the performance of federal agencies. For example, the PCIE recommended that OMB require that federal agencies identify and account for their software maintenance costs and prepare cost-benefit analyses to help system managers make budgetary allocations.

We are satisfied that NSF management is aware of potential problems that NSF, and all computer users, will have recording the year 2000 in two-digit data fields. NSF has undertaken internal reviews to identify the application systems that must be modified promptly.

We reviewed NSF's procedures for purchasing personal computers and recommended that the request for vendor price quotes be centralized to optimize and standardize computer purchases and to reduce processing time and duplicate quotations.

We also continued to monitor the development and testing of a contingency plan designed to restore NSF's computing capabilities in the event of a major shutdown. In response to our recommendation, NSF management prepared a plan that describes actions required before, during, and after a major shutdown occurs. In particular, NSF plans to test its ability to continue operations from a selected alternate site. We will review the final plan after it is completed to ensure that it adequately provides for the resumption of computer operations in the event of a major shutdown.

Audit Identifies Underpayments to Contract Employees

As part of our internal review function, we reviewed a contract that provides the staffing for NSF's mailroom, printing, and warehouse operations. The contract recipient has similar contracts with six other federal agencies; all of these contracts are subject to the Service Contract Act. The Act prohibits recipients of

federal contracts from paying contract employees a wage less than that outlined in the Wage Determination section of the Act. The Act also sets the fringe benefits that must be provided to contract employees.

We audited payroll transactions for FYs 1995 and 1996 and found that the recipient and its subcontractor were not complying with minimum wage standards, which resulted in \$47,066 in underpayments to contract employees. We also found that some contract employees were not paid for the Christmas 1995 and New Year's 1996 holidays even though pay for these holidays is mandated as fringe benefits under the Service Contract Act. Lost holiday pay totaled \$3,375. In addition, NSF was billed \$4,054 for the two holidays, but we could not confirm that employees actually received any of this amount.

We reported \$4,054 in questioned costs to NSF management for resolution. We referred the apparent violations of the Service Contract Act to the agency that has jurisdiction over this matter, the Department of Labor, for formal investigation and adjudication.

Donation or Sale of Excess Computer Equipment

When old computers are replaced with more recent models, the old computers are “excessed.” In each of the last 2 years, NSF has had available approximately 500 excess computers, with an estimated value of \$275,000. Excess computers are usually transferred to the General Services Administration (GSA), which may distribute them to other federal agencies or to nonprofit institutions.

The President recently signed an Executive Order that committed the government to an efficient donation process for making computer technology available in the classroom. The Executive Order directs federal agencies to transfer educationally useful equipment directly to schools, rather than to GSA. This procedure allows schools to receive needed equipment and helps ensure that computers do not become outdated during an extended donation process. Based on the Executive Order, we recommended that NSF set up a program that facilitates the donation of excess NSF computers to schools.

As an alternative or supplement to donating excess computers, we recommended that NSF

evaluate the feasibility of selling excess computers to employees. This would benefit employees seeking to purchase a computer. In addition, NSF may be able to use the proceeds from the sale to purchase replacement computers for use at NSF.

NSF responded that it is drafting a plan for donating excess NSF computers to schools. Currently, several hundred computers are available for transfer. NSF is also considering the possibility of selling excess computers to NSF staff members.

INVESTIGATIONS

The investigations section is responsible for investigating violations of criminal statutes or regulations involving NSF employees, grantees, contractors, and other individuals conducting business with NSF. The results of these investigations are referred to federal, state, or local authorities for criminal or civil prosecution or to NSF's Office of the Director to initiate administrative sanctions or penalties.

EMBEZZLEMENT OR DIVERSION OF NSF GRANT FUNDS

We place a high priority on allegations involving embezzlement, diversion of grant or contract funds for personal use, or other illegal use of NSF funds. Deliberate diversion of NSF funds from their intended purpose is a criminal act that can be prosecuted under several statutes. We encourage universities and other grantees to notify NSF of any significant problems relating to the misuse of NSF funds. Early notification of significant problems increases our ability to investigate allegations and take corrective action to protect NSF and its grantees.

In this reporting period, we investigated 23 cases involving diversion of grant funds: 7 cases resulted in the return of \$261,301 in grant funds, and 4 cases are pending at the Department of Justice. We also used the results of our investigations to recommend improvements in some of NSF's administrative practices.

Abuse in the Federal Excess Property Program

The federal excess property program, which is coordinated by GSA, was created to redistribute federal property that is no longer used by a particular agency. NSF grantees are eligible to enter this program and acquire property at no cost. The grantee, with NSF's approval, designates an employee, known as a screener, to examine, order, and pick up excess federal property. NSF grantees receive title to the property once NSF is notified that the grantee has received the property. Even though the grantee now owns the property, it is to be used for the research or educational project funded by the NSF grant. When the property is no longer useful or needed, the

grantee can either dispose of or sell the property. However, all proceeds from the sale of this property are to be used for scientific and educational research.

With the closing of many U.S. military bases, the federal excess property program has grown considerably during the last 6 years. In 1995, NSF grantees obtained property with an asset value listed at approximately \$50 million from this program, compared to \$5 million in 1990. Although we estimate that the real market value of this excess property is far less than the listed asset value, the program has grown substantially in recent years, and the number of allegations regarding abuses

associated with this program has increased proportionately.

During this reporting period, we conducted three investigations concerning allegations that NSF-sponsored screeners diverted federal excess property for personal use. We are working with Federal Bureau of Investigation (FBI) and Department of Defense (DoD) agents to resolve two of these cases and have completed one investigation.

In the case that we completed, the screener was also the university property manager and therefore was responsible for the acquisition and delivery of excess property as well as its subsequent disposal or sale. During the last 6 years, the screener used NSF grants to receive over 8,300 pieces of excess property that were distributed throughout the university. Most of this property was not entered into the university's inventory system, and much was not used for purposes related to the NSF grants. During the last 2 years, the property manager sold unused, excess property at public auctions and private sales and placed the proceeds in a separate university account. The university did not remit the proceeds from these sales back to the NSF research, as required. Instead, the property manager planned for the university to use this money to

pay him for screening property after he retired from full-time university employment, which is scheduled for later this year. As a result of our investigation, the university took administrative action against the property manager and credited the proceeds from the sale of the excess equipment, over \$50,000, back to the NSF-funded research projects. The university also established internal controls to monitor excess property and to ensure that all excess property is used for its original scientific and educational purpose.

Vice President Gore's National Performance Review recommended that Inspectors General use the results of investigations to "help managers evaluate their management control systems" and make recommendations to "help improve systems to prevent waste, fraud, and abuse, and ensure efficient effective service." As a result of our investigations, we made several recommendations that will enable NSF to monitor the federal excess property program more effectively, ensure that excess property is used for NSF-funded research, and ensure that proceeds generated from the sale of excess property are used to support the scientific and educational projects funded by NSF grants. NSF management generally agreed with our recommendations.

Company Submits False Claims to Receive NSF Funds

We were notified by DoD that a small mid-western engineering company had a contract that was similar in scope to a grant the company received from NSF's Directorate for Education and Human Resources (EHR). DoD identified the similar projects during a preliminary audit by the Defense Contract Audit Agency (DCAA), which disclosed several deficiencies in the company's accounting system. As a result of the audit, DoD suspended payment of funds to the company pending the completion of the DCAA audit, and NSF's Division of Grants and Agreements (DGA) suspended the NSF grant, which had an \$88,000 balance.

We examined the proposals for the DoD and NSF projects to determine whether there was any duplication of effort. DoD provided the company \$1.2 million to examine issues related to DoD funding at Historically Black Colleges and Universities (HBCUs). NSF awarded the company \$214,645 to identify those HBCUs that had been successful in receiving federal funding to support their science and engineering departments. Ultimately, the NSF project sought to highlight those factors that contributed to an HBCU's success in receiving federal funding

so that HBCUs with significantly fewer federal dollars could campaign more effectively for federal funding. The DoD contract was awarded to study how well HBCUs managed DoD funding programs specifically available through the Army, Navy, and Air Force. We determined that, unlike the NSF effort, the DoD project required a technical analysis of the budget and financial controls as well as the scientific capabilities of selected HBCUs.

Although we did not conclude that there was significant overlap in the projects' research objectives, we found that the principal investigator (PI) on the NSF award used NSF grant funds to pay for work performed on the DoD contract and for the company's general operating expenses. The PI is the owner and president of the company and had authority to make expenditures relevant to both projects. The PI admitted in a sworn statement that he used the NSF funds to pay consultants and employees who worked on the DoD project and to cover cash flow shortfalls in the company's general operation. The PI also admitted to signing a Federal Cash Transactions Report that falsely certified that he had spent \$125,845 on the NSF effort, when, in fact, the PI had spent only \$75,000 on the NSF project. In addition, the PI admitted to submitting four false requests for

reimbursement to NSF for expenses that had not been incurred. The PI claimed that the requests for reimbursement were meant to be requests for advance payments. However, on the requests for reimbursement, the PI specifically certified that he had already incurred the costs.

As a result of our investigation, DGA terminated the award to the company, which allowed the NSF program director to reobligate the remaining \$88,000 for other scientific and engineering educational projects. We also referred the false claims and statements we identified in this matter to the appropriate U.S. Attorney's Office.

Science Education Grant Funds Misused by Local School District

We received notice that a northeastern state investigative authority was investigating a local school district for alleged misuse of NSF science education funds. We coordinated our investigative efforts with the state and found that the school district had mischarged NSF funds for educational activities that were unrelated to the NSF grant. No one personally benefited from the misuse of the NSF funds; however, the school district initiated administrative action against an education official for the misuse of funds. In

addition, the school district returned \$18,000 to the NSF grant and agreed to closely monitor future grant expenditures.

University Mischarges Science Education Grant

A southern university improperly charged a science education grant for salary expenses that were unrelated to the grant. We contacted university officials and alerted them to the situation, which prompted the university to credit the NSF grant \$9,500. In addition, the university reviewed its internal financial management system to ensure that similar, unrelated expenditures would not be charged to other NSF grants.

University Administrator Pleads Guilty to Embezzlement

A university internal auditor found that a university administrator had embezzled \$50,000 from a private research grant. The matter was referred to local law enforcement authorities, and the administrator admitted to the embezzlement. Continued review of the administrator's activities revealed that she had also embezzled \$4,464 from an NSF grant. The administrator pleaded guilty in state court to embezzlement and agreed to pay full restitution. The \$4,464 was returned to the NSF grant.

SBIR CASES

During the reporting period, we continued to resolve cases involving SBIR awards. In addition to continuing work on two cases, we initiated a third case and are coordinating our efforts on that case with the Department of Justice.

Trial Date Set for Owner of SBIR Company

In Semiannual Report Number 14 (page 42), we reported that the president and sole employee of a west coast SBIR company had been indicted by a Federal Grand Jury on November 16, 1995. The indictment charged the PI with six counts of wire fraud, in violation of 18 U.S.C. § 1343, *Wire Fraud*, and six counts of false statements to NSF, in violation of 18 U.S.C. § 1001, *False Statements*. The indictment followed an OIG investigation, which concluded that the PI, though regularly requesting and receiving funds during the 2-year period of his NSF SBIR Phase II grant, performed less than 3 months of research. The trial is scheduled for December 2, 1996, and we are assisting an Assistant U.S. Attorney to prepare for trial.

U.S. Attorney's Office Issues Civil Demand Letter to SBIR Company for Submitting Duplicate SBIR Proposals

As reported in Semiannual Report Number 14 (page 43), we began an investigation because an OIG audit found that this company routinely submitted similar or identical proposals to different agencies without disclosing its prior submissions, as required in the proposals and certifications. This allowed the company to receive awards from two federal agencies for the same project. We referred the case to the appropriate U.S. Attorney's Office. We assisted an Assistant U.S. Attorney in drafting a demand letter that stated that the company could be liable for damages and penalties totaling \$280,000.

Company Submitted False Statements Concealing Duplicate Proposals

An OIG audit of a northeastern company determined that the company had received duplicate funding from two federal agencies for essentially the same research project. By not disclosing a pending, duplicate NSF proposal in its proposal to another federal agency, the company received two SBIR Phase I awards for the same project. In addition, the company submitted a final report to the other agency that was a duplicate of the one it sent to NSF several weeks earlier. We concluded that the company submitted false claims in violation of 31 U.S.C. § 3729, the civil *False Claims Act*. We referred the matter to the appropriate U.S. Attorney’s Office and are working with an Assistant U.S. Attorney to resolve this matter.

The Office of Audit also reviewed grants provided to several other SBIR companies. Those reviews are described on page 16 of this Report.

TABLE 1:
INVESTIGATIVE ACTIVITY

Active Cases From Prior Reporting Period	38
New Allegations	36
Total Cases	74
Cases Closed After Preliminary Assessment	3
Cases Closed After Inquiry/Investigation	30
Total Cases Closed	33
Active Cases	41

OTHER CASES

Individual Impersonates an NSF Program Officer

During this reporting period, we received an allegation that an individual had claimed to be an NSF Program Officer; provided fellowship application forms that bore false NSF letterhead to a graduate student; and, upon return of the completed application forms, told this graduate student that his award had been approved by the NSF committee this individual was supposedly supervising. We concluded that this individual was not affiliated with NSF. However, to persuade people that he was an NSF Program Officer, the individual created and distributed several documents on false NSF letterhead or bearing NSF's name and created a false NSF identification badge, all in violation of 18 U.S.C. § 701, *Possession of a False Identification Card*; 18 U.S.C. § 912, *Falsely Pretending to be an Officer or Employee of the United States*; and 18 U.S.C. § 1017, *Government Seals Wrongfully Used*.

We also found that this individual was on probation for state convictions for forgery (attempting to cash stolen checks) and battery. We have referred the matter to the appropriate U.S. Attorney's Office and the individual's state probation officer for possible criminal and administrative sanctions.

Federal Trade Commission Files Complaint to Stop Fraudulent Scholarship Program

In Semiannual Report Number 14 (page 46), we reported that we were working with the U.S. Postal Inspector Service to investigate an individual who used a name similar to “National Science Foundation” to solicit money from students by representing that the organization could award academic scholarships. The individual had signed an agreement with the U.S. Postal Service in 1994, agreeing not to represent that he or his organization provides and/or obtains scholarships to promote academic studies.

During this reporting period, the Federal Trade Commission joined our investigative effort and filed a civil complaint against the individual for falsely representing his organization’s ability to provide academic scholarships.

Former NSF Employee Pleads Guilty to Bank Fraud

A former NSF office automation clerk pleaded guilty to bank fraud in the U.S. District Court for the Eastern District of Virginia. We investigated this employee following an allegation by NSF’s Federal Credit Union that the employee attempted to cash a check that contained a forged signature. We discovered that the employee had failed to indicate on his application for employment that he had been convicted of a crime within the last 10 years. In fact, the employee had been convicted of a misdemeanor in Arlington County, Virginia. We also found that the employee used NSF office equipment to facilitate a scheme to defraud several local banks and car dealerships. The employee resigned from NSF after being notified that NSF would terminate his employment, and we referred this matter to the U.S. Attorney’s Office. Further investigation of the bank fraud scheme was jointly conducted by the FBI and OIG. Subsequently, a federal grand jury indicted the former NSF employee for bank fraud. On July 24, 1996, the former employee pleaded guilty to four counts of fraud on a financial institution. The former employee was sentenced to 21 months in prison.

Misuse of Internet Access

- NSF computer technicians detected an unusually high number of calls from outside computers to an NSF computer. The technicians discovered that an unauthorized File Transfer Protocol site had been established on the NSF computer. We determined that an NSF summer intern had established the File Transfer Protocol site. The intern admitted in a sworn statement that he used the computer to establish an unauthorized File Transfer Protocol site to electronically exchange copyrighted software with outside users. After the intern exchanged numerous software programs, the intern dismantled the site to avoid detection. The intern resigned after being notified that NSF would initiate administrative sanctions.
- An NSF program assistant was suspended after using the Internet/World Wide Web to access, download, and print pornographic and other material not related to official NSF business. The employee had accessed these websites while at his NSF computer and used a local area network printer to print the material.

Funds Returned as Part of Misconduct Case

Cases that involve misconduct in science are described in the Oversight section of this Report. We describe investigative recoveries in this section. In this reporting period, as part of the resolution of a misconduct case that involved plagiarism and a violation of the confidentiality of peer review, NSF and the university agreed to terminate an NSF grant. As a result, \$88,923 was returned to NSF (see page 42).

TABLE 2:
INVESTIGATIVE STATISTICS

Referrals to Judicial Authorities	5
Referrals From Previous Reporting Period	5
Prosecutorial Declinations	1
Indictments (including criminal information)	1
Criminal Convictions/Pleas	1
Civil Complaints Filed	1
Administrative Actions	5
Investigative Recoveries*	\$261,301

* Investigative Recoveries comprise civil penalties and criminal fines and restitutions as well as specific cost savings for the government.

OVERSIGHT

The Office of Oversight focuses on the science-engineering-education-related aspects of NSF operations and programs. It oversees the operations and technical management of the approximately 200 NSF programs that involve about 53,500 proposal and award actions each year. The Office conducts and supervises compliance, operations, and performance reviews of NSF's programs and operations; undertakes inspections and evaluations; and performs special studies. It also handles all allegations of nonfinancial misconduct in science, engineering, and education and is continuing studies on issues related to misconduct in science.

MISCONDUCT IN SCIENCE AND ENGINEERING

NSF's Safeguards for Properly Resolving Misconduct Allegations

In June, the Department of Health and Human Services' (HHS) Research Integrity Adjudications Panel overturned a finding of misconduct in science by HHS' Office of Research Integrity (ORI) in a highly publicized case (IN THE MATTER OF THEREZA IMANISHI-KARI, PH.D.). Since the Research Integrity Adjudications Panel's decision, there has been much public comment suggesting that HHS needs to reform how it handles misconduct in science cases.

Although we play no role in handling cases at HHS, we are often asked whether NSF's handling of misconduct issues needs reform. We continually strive to improve our processes, and we welcome suggestions for improvement. At the same time, we believe NSF already has important safeguards in place that help us handle misconduct cases well. These safeguards mainly involve the processes by which NSF investigates and adjudicates cases. They also involve how we interpret the definition of misconduct in science in NSF's regulation. But we believe the wording of the definition is not by itself a safeguard. NSF's

definition enables misconduct cases to be handled in a principled way, but it takes sound procedures and appropriate interpretation to realize its full value.

One safeguard is the separation of investigation and adjudication. At NSF, no single office performs investigations and also makes findings of misconduct: the Office of Inspector General investigates misconduct cases, and an entirely independent official, ordinarily NSF's Deputy Director, takes a fresh look at the evidence, judges whether a finding of misconduct is warranted, and determines whether NSF should take action against the subject. The Deputy Director gets scientific and legal advice from people whose offices were not involved in investigating the case. Neither the Inspector General nor the Deputy Director plays any role in supervising the other. We believe the organizational separation of investigation and adjudication gives our office incentives to develop strong cases that will persuade an impartial outsider and to close cases without recommending a finding of misconduct where the evidence is not persuasive. In addition, we believe this separation helps ensure fairness to accused

scientists by guaranteeing that only an official who has had no role in the investigation can find that they committed misconduct.

Another safeguard is that misconduct inquiries and investigations are conducted confidentially to the maximum extent permitted by law. We routinely decline to comment publicly about whether we have a case, let alone about the evidence we have collected. Our investigative files are protected by the Privacy Act, which minimizes publicity. Our practice avoids involving complainants in our investigative decisions, keeps the identities of affected parties confidential, and avoids the harm that more public investigations do to the reputations of those involved. It also enables us to keep our view of a case flexible and open to new evidence because we are not tempted to pursue a case in a way that will justify a prematurely taken public stance.

Our process ensures fairness to accused scientists by providing them with opportunities to be heard at appropriate stages in the case. We encourage them to offer evidence and explanations from the earliest point at which it is practicable for them to do so, and we permit them to confront and respond to the evidence against them after we have drafted a written report of the case that explains why we are

prepared to recommend that NSF find they committed misconduct. In our view, fairness demands that accused scientists have an opportunity to respond to a coherent explanation of the case against them, not that they be asked for piecemeal responses to isolated bits of evidence as a case is developing or allowed to monitor the investigative process.

Another practice that we think facilitates sound case decisions is analyzing cases in writing and subjecting written case analyses to multifaceted review. In our office, the staff scientist who takes the lead in the investigation prepares written analyses at significant points in the investigative process. Written analyses place a premium on careful thought and rational argument. They minimize the influence of emotional reactions on how a case is handled. These analyses are reviewed by scientists and attorneys who have not participated directly in gathering the evidence. Writing and reviewing encourage sober second looks at the evidence in a case. By involving both scientists and attorneys at every stage in the development of misconduct cases, we help ensure that relevant legal and scientific considerations figure into our investigative decisions and that, in the end, recommended findings of misconduct are based on sensitivity to the standards that are

accepted in the scientist’s community and strong evidence that those standards have been seriously violated.

Our interpretation of the definition of misconduct in science is also important. For us, the language in our regulation about “serious deviation from accepted practices” is at the core of the definition. Rather than viewing this language as a vague “catch all” clause that gives us undefined and unlimited jurisdiction, we view it as “empowering NSF to take action against serious violations of the ‘common law’ of the scientific community, that is, the shared standards that enable communities of scientists to function” (Semiannual Report Number 13, page 27).

Our interpretation of this language maximizes the congruence between the ethical standards of the scientific community and the regulatory standard against which scientists are judged. In a data falsification case, the idea that misconduct in science is a “serious deviation from accepted practice” focuses the investigation on whether and how the data reports in question seriously violate the standards in the relevant scientific community for truthfulness in how scientists should present their data. Because we focus directly on community standards, we can avoid formal

definitions that imperfectly mirror how scientists use terms such as “falsification” and that can acquire a regulatory life of their own, divorced from the scientific community’s ethical standards.

We encourage those interested in improving the way misconduct cases are handled to study these and other organizational processes at NSF and elsewhere. We believe close attention to process can lead to improvements in the fairness, rationality, and timeliness with which agencies handle misconduct cases.

NSF’s Definition of Misconduct in Science and Engineering

Fabrication, falsification, plagiarism, or other serious deviation from accepted practices in proposing, carrying out, or reporting results from activities funded by NSF; or retaliation of any kind against a person who reported or provided information about suspected or alleged misconduct and who has not acted in bad faith.

CASES LEADING TO INVESTIGATIVE REPORTS SENT TO THE OFFICE OF THE DIRECTOR

Violating the Confidentiality of Peer Review and a Pattern of Plagiarism

We were informed that the subject had submitted an NSF proposal that contained text that was copied from another PI's NSF proposal (the source proposal).

We learned that a researcher in the subject's department had received the source proposal from NSF with a request for confidential merit review. Without obtaining NSF's permission, the researcher shared that proposal with the subject and asked him to review a particular method about which he considered the subject knowledgeable. The subject said the researcher told him the source proposal was confidential, and yet, while the subject had it, he photocopied selected pages. The subject claimed he subsequently copied text from these pages into his own NSF proposal. We identified five sections of text from the source proposal that had been copied into the subject's NSF proposal. We concluded that the subject had to have photocopied the entire confidential source proposal because he wrote his own NSF proposal several months later, and he could not have envisioned what part of

it would be relevant to his own NSF proposal that he had not yet written.

When the subject submitted his NSF proposal containing the text plagiarized from the source proposal, he requested that the author of the source proposal not be included as a reviewer of his NSF proposal because he had a "conflict of interest." The author of the source proposal and subject were research competitors, and we concluded that the subject's request was an attempt to prevent the author from detecting the plagiarism.

During our inquiry, we learned that the subject had also submitted a proposal to the National Institutes of Health (NIH) and that it contained two sections of the copied text found in his NSF proposal; but it also contained more copied text. We found that the subject's NSF and NIH proposals and the source proposal were revisions of proposals that had been submitted 1 year earlier to the same agencies. Although these earlier proposals had been declined, the subject's revised NIH proposal and the revised source proposal were funded. We found that the two larger sections of copied text, which appeared in the subject's revised NIH and NSF proposals were directly

responsive to reviewers' criticisms of the subject's earlier proposals.

The University's Investigation

After contacting HHS' ORI, we deferred the investigation into this case to the institution. The institution's investigation concluded that the subject had committed misconduct in science. Specifically, it decided that a preponderance of the evidence supported the conclusions that the subject acted knowingly and willfully when he plagiarized text from the NSF source proposal into his own and that he violated the confidentiality of peer review. The subject claimed that he had requested that the author of the source proposal be excluded as a reviewer of his NSF proposal based on department policy. Other members of the department stated that there was no such policy. The institution also concluded that the subject's actions were an isolated incident. It

conclusion on the subject's statements, on four separate occasions, that he had never plagiarized material in the past.

OIG's Investigation

During our review of the university's investigation report and the supporting evidence, we identified an additional section of text the subject had copied from the NSF source proposal into his funded NIH proposal. In response to our questions, the subject admitted that he had also copied sections from an overview article into his earlier declined proposals. The subject identified additional sections of the overview article that he had copied into his earlier proposals. The subject also said that all the remaining material was his alone. However, when we compared the subject's earlier proposals with the overview article, we found additional sections of text that had been copied from the article into

TABLE 3: MISCONDUCT CASE ACTIVITY

	FY 1996 First Half	FY 1996 Last Half
Active Cases From Prior Reporting Period	76	68
Received During Period	13	25
Closed Out During Period	21	34
In-Process at End of Period	68	59

these earlier proposals. We found many of the sections copied in the subject's earlier proposals in his subsequently submitted revisions. Some of the text in these sections had been edited when the subject revised the earlier proposals.

In all, we concluded that the subject had plagiarized 17 sections of text. We concluded that the subject photocopied the entire NSF source proposal, not, as he claimed, selected pages.

A preponderance of the evidence supported the conclusion that the subject had knowingly plagiarized text into his earlier unfunded proposals from the overview article and that he had willfully plagiarized text into his revised proposals from the NSF source proposal. He knowingly violated the confidentiality of peer review when he ignored the researcher's stipulation that the source proposal was a confidential document and photocopied that proposal for his later use. We concluded that the subject exhibited a pattern of plagiarism in the proposals he submitted to two federal agencies. Each of his four sequentially submitted proposals contained at least one new section of copied text not found in the previous versions. We viewed his actions as more serious because he was not truthful with

the investigating committee or with OIG when he claimed he had only copied selected pages from the NSF source proposal and when he claimed, on four separate occasions to the university investigating committee, that he had never plagiarized in the past. We disproved his statement to us about the complete originality of the text in his earlier proposals. Finally, the subject attempted to prevent the original author from reading his NSF proposal by requesting that he not be permitted to review it.

We recommended that the Deputy Director find that the subject committed misconduct in science; debar him from receiving federal funds for 2 years; and prohibit him from participating in NSF's review process for 3 years. We recommended that, for 2 years following the debarment, the subject be required to certify that his proposals contain nothing that violates NSF's misconduct regulation and accompany his certification with an assurance by his chairperson that the proposal contains no plagiarized material and all source documents are properly cited.

Plagiarism in an NSF Proposal

We received an allegation that the subject, an experienced researcher at a western university, had plagiarized text in his funded NSF proposal from a review article by other scientists. Eleven sections of text, consisting of 44 lines in the proposal, were either identical or substantially similar in wording to the article's text. None of the text was offset or cited to the source document. The subject explained that the text copied from the review article did not contain original ideas, and comparable wording could be found in other publications. We compared the subject's proposal, the review article, and the publications in a reference list provided by the subject. We concluded that the subject's evidence verified that the copied text contained knowledge that was common in the field, but did not support his contention that the wording he used in his proposal could be similarly explained as common in the field.

We referred the allegation to the university for investigation. The investigation committee accepted the subject's explanation that he had written the proposal from notes he had prepared while reading the review article as well as other publications, and this accounted for the similarity in wording. The committee observed that the subject had referenced the article once in the proposal, although not in conjunction with any of the 11 sections of copied text. The committee cited two examples of text that it believed supported the conclusion that other publications contained text comparable to the copied text. However, in the first instance, the committee misquoted part of the text from the two sources it was comparing, and, in the second, the committee cited only a single sentence. When we asked the committee to provide additional convincing examples of comparable text, it cited the subject's original reference list. The committee said it was natural for authors writing about the same ideas to produce text that was similar. The committee concluded that, because the proposal did not contain a single, complete verbatim sentence copied from the article, the subject had not committed plagiarism or misconduct in science.

We regarded the committee's view of plagiarism as too narrow because it did not

recognize that close paraphrasing as well as copying many units of text shorter than a sentence is commonly considered plagiarism. The committee accepted the subject's account that he relied on notes he prepared from the article to write his proposal. However, because the subject had discarded his notes, the committee could not substantiate his claim that he used notes to prepare his proposal. The committee did not request other examples of the subject's notes. It could not verify that he actually used notes or, if he did, whether they commonly contained source citations and distinguished between copied or paraphrased text and his own.

We determined that the subject had been less than truthful when he denied that the copied text in his proposal was from the article and when he contended that the identified text was comparable to other published text. We believe the subject seriously deviated from accepted practice when he copied 44 lines of text from the article, including some of the article's organization, into his NSF proposal. We concluded that, even if the subject copied text into his proposal from notes he prepared from the article, as he claimed he did, his action was grossly negligent because he did

not check to see whether he was properly acknowledging his sources. However, given the extensive copying of text from the article into the proposal and the similar organization of the material in both documents, we considered it more likely than not that the subject actually copied the text directly from the article into the proposal.

We concluded from the preponderance of the evidence that the subject, an experienced scientist and journal editor, committed plagiarism. We recommended that the Deputy Director find that the subject committed misconduct in science; send him a letter of reprimand; require that he certify to NSF for 2 years that any proposal he submits as a PI or co-PI contains nothing that could be considered misconduct in science; and require that his department chairperson certify that, to the best of his/her knowledge, the proposal contains no plagiarized text.

CASES SENT TO THE OFFICE OF THE DIRECTOR IN AN EARLIER SEMIANNUAL PERIOD

Plagiarism and Violation of Confidential Merit Review

In Semiannual Report Number 13 (page 31), we discussed the case of a PI who had plagiarized text and figures from an NSF proposal he had earlier reviewed as a member of an NSF review panel. The subject claimed that a student had plagiarized the material from the proposal without his knowledge. However, we learned that the student was not in the country when the subject's proposal was prepared, and that the subject, alone, prepared it. We recommended that NSF send the subject a letter of reprimand, debar him from receiving federal funds for a period of 3 years, prohibit the subject from serving as a reviewer for NSF for a period of 5 years, and recover the funds (\$88,923) awarded to the subject's institution on the basis of the subject's proposal that contained plagiarized material. The Deputy Director concluded that the subject had committed "severe misconduct in science" and sent him a letter of reprimand. She debarred him from receiving federal funds for 2 years and prohibited him from serving as

a reviewer, consultant, or advisor for NSF for 5 years. NSF and the university mutually agreed to terminate the grant resulting from the proposal containing the plagiarized material, with an \$88,923 recovery.

Plagiarism From Four NSF Proposals

In Semiannual Report Number 13 (page 34), we discussed a case in which a subject submitted a proposal to NSF that contained material plagiarized from four other NSF proposals. The amount of material plagiarized was substantial. NSF's Deputy Director concurred with our recommendations in this case. She found that the subject committed plagiarism, and his actions were a serious deviation from accepted practices in the scientific community. She determined that the subject committed misconduct in science; debarred him from receiving federal grant funds for 1 year; and prohibited him from serving NSF as a reviewer, advisor, or consultant during the debarment period.

CASES CLOSED IN THIS PERIOD WITH NO INVESTIGATION REPORT TO THE OFFICE OF THE DIRECTOR

In this section, we discuss five cases we closed that did not result in recommendations for findings of misconduct, but which, nonetheless, highlight important issues. The first four cases well illustrate how problems arising from poor student-mentor relationships can result in allegations of misconduct in science. Three of these cases also illustrate the importance of timely, well-managed institutional processes for resolving such allegations. The fifth case describes our decision not to readdress a case whose facts had been considered and resolved by another federal agency.

Deciding Authorship Credit

A university conducted an investigation of three allegations that an NSF-funded professor had misappropriated his graduate students' work by:

- not naming one of his graduate students as a coauthor on a paper that was based extensively on the student's thesis work;
- including himself as a coauthor on a journal publication that was based on a term paper written solely by another of his students; and
- referencing a computer program different from the one actually used to calculate the reported results. The referenced program was written by the professor and a collaborator; the program actually used was written by one of the professor's students.

The university committee concluded that the action involved in the second allegation was within the accepted practices of the community, and that, in the other two allegations, the professor's actions deviated from accepted practices, but they did not rise to the level of misconduct.

We asked the Chancellor to clarify why, in light of the facts presented by its investigative panel, the university believed the professor's deviations from accepted practices were not serious. The Chancellor replied that he personally disagreed with some of the panel's conclusions, but that as an official of the university, he did not wish to overturn the panel's decision. We requested that the Chancellor reconvene the investigative panel to clarify its reasoning, but he declined to do so. The university's decision left us with no authoritative reasoning from the university and

with the conflicting assessments of the Chancellor and the investigative panel on the seriousness of the professor's deviations from accepted practices. Consequently, we were unable to close this case at this point.

As discussed in Semiannual Report Number 12 (pages 26 and 27), NSF relies on the university to provide a detailed analysis explaining its decisions and actions. However, NSF has the authority to take independent action, if necessary, to protect the integrity of research connected with its funds. We initiated our own investigation and consulted with two experts familiar with research and publication practice within the professor's field.

The two consultants were split on their opinion about whether the professor's actions related to the two unresolved allegations represented serious deviations from accepted practices. We concluded that, under the circumstances, we could not make a case that misconduct in science was demonstrated for any of the allegations, and we subsequently closed this investigation.

Although there was no finding of misconduct in this case, still, the professor's role as a mentor was compromised by his arbitrary assignment of authorship credit. Not only did the students not receive the credit they

deserved, but their opportunity to learn what is accepted practice was affected.

Alleged Intellectual Theft and Sexual Harassment

A graduate student (the complainant) at a large northeastern university alleged that her faculty advisor (the subject) appropriated some of her ideas without acknowledgment on four separate occasions. The ideas appeared in publications and as part of conference presentations. The complainant told us that she had informed the university of her allegations and that it had initiated an inquiry. We referred our inquiry to the university and asked that it provide a copy of its inquiry and any investigation report on completion.

We subsequently learned that the complainant's statement to the university included allegations of sexual harassment against the subject that she linked with the allegations of intellectual theft and with his impeding her research progress. The complainant informed the U.S. Department of Education (DoEd) about the alleged sexual harassment, and she also initiated legal proceedings against the subject and the university. We suspended our review of the allegations pending resolution of the legal proceedings. Subsequently, we learned that the parties had reached a confidential

settlement agreement resolving the issues, and that DoEd on this basis had closed the complainant's case. We requested a copy of what the university considered its inquiry report. The report did not adequately address the four allegations of intellectual theft and did not evaluate the allegations of sexual harassment as possibly impeding the complainant's research efforts. At our request, the university initiated an investigation into the allegations of intellectual theft.

The university's investigation committee concluded that the subject had not committed intellectual theft, but its investigation report was incomplete. We requested additional information and on the basis of what we received decided to initiate our own review. Our examination of the four allegations of intellectual theft determined that one had no substance, and another had insufficient substance to pursue. Of the two remaining allegations of intellectual theft, one involved some of the complainant's data that had been published in a paper coauthored by the subject with another scientist, and the other involved some of the complainant's ideas and text that appeared in a conference paper published by the subject. Although the subject had apparently used the complainant's information in both instances, in one case he had not acknowledged her help in the paper. In the

other, the subject had provided the complainant with only limited acknowledgment rather than authorship. We observed that the subject used the complainant's work in a manner that was not collegial. We concluded that, although the subject's citation practices did not provide a supportive and positive mentoring environment for the complainant, his actions in this situation did not rise to the level of misconduct in science.

The institution had previously considered the allegations of sexual harassment separately under other existing policies and procedures and had entered into a confidential settlement agreement, which precluded the parties from any future discussion of them. We had received detailed information from the complainant about the allegations of sexual harassment prior to the settlement agreement. We reviewed the complainant's claim that the subject's alleged sexual harassment impeded her research progress. The complainant's detailed description revealed a complex relationship between the complainant and the subject. We were unable to find clear examples of alleged sexual harassment by the subject that could be linked to his impeding her research progress. We also concluded that the complainant's allegation that the subject's failure to properly acknowledge her research efforts was evidence of sexual harassment was

unsupported because both the institution's and our investigations determined that no intellectual theft had occurred.

In this case, because the university had not followed through with an acceptable inquiry into the allegations of misconduct in science as we expected, we were forced to ask the university repeatedly for information and eventually to initiate our own review of these matters to resolve the case. A more timely resolution of this case would have been possible had the university carried out an adequate inquiry and investigation, as required by NSF's misconduct in science regulation (45 C.F.R. § 689.3), and had fully addressed all allegations.

Department Chair Issues Inappropriate Ultimatum

A graduate student whose research had been supported by an NSF award to his dissertation advisor complained to his university that the advisor had misappropriated his work. The student also complained to NSF and to a professional society, and he refused to reimburse the university for certain funds he owed it despite having promised to do so. The chair of the student's department instructed the complainant that the university would inquire into his misconduct complaints, but only if he behaved appropriately, kept his promises to the university, and took steps to repair the damage he had caused to his advisor's reputation when he made his allegations widely known.

The student alleged that the advisor had committed misconduct by claiming coauthorship of the student's work. We determined that the advisor had initiated the research in question and secured NSF funding for it. The work was carried out under the advisor's direction and along lines projected in the advisor's NSF proposal. We concluded that, however little the advisor did to execute the project plan, his contribution in developing the plan was such that a claim of coauthorship could not be considered misconduct.

Our inquiry indicated that the student's allegations lacked substance, and we closed the case. After doing so, we wrote to the university administrator who represents the university in its dealings with NSF to inform him that the department chair's action was inappropriate. We explained that awardee institutions must pursue allegations of misconduct regardless of how the informant who raised the allegations behaves. We asked the administrator to inform department heads and other responsible administrators at the university of their obligations in situations such as this.

In our view, the primary purpose of university inquiries and investigations is to safeguard the integrity of research and education at the university, not to serve the interests of complainants. University inquiries and investigations also help maintain the integrity of NSF's proposal and award processes. NSF's misconduct regulation (45 C.F.R. § 689.3) states that "in most instances, NSF will rely on awardee institutions to promptly: (1) Initiate an inquiry into any suspected or alleged misconduct; (2) Conduct a subsequent investigation, if warranted; and (3) Take action necessary to ensure the integrity of research. . . ." It is unacceptable for a university official to undermine our common effort to uphold integrity in science and

engineering in an attempt to induce a complainant to improve his behavior.

No Communication Between Professors and Graduate Student

We received an allegation that a journal paper, published with NSF funds by three professors and a graduate student, contained data that were either fabricated or falsified. The complainant's concern was that these results would distort priorities in an expanding field of research. The complainant knew that a scientist had previously contacted the authors of the journal paper to clarify their calculations. The complainant concluded from the three professors' response that they had not followed the procedure described in their paper.

An NSF program officer agreed with the scientist's analysis. When we asked the professors to explain the alleged discrepancies between the procedure presented in their paper and the procedure described in their response to the scientist, they said they were responsible for designing the scope of the project and writing the manuscript, but that the graduate student was solely responsible for calculating the results. They composed the response to the scientist because the graduate student had transferred to another university and made himself unavailable to the prof-

errors. Their response was consequently based on their interpretation of how they thought the graduate student had calculated the results.

The graduate student explained that when he replied to our letter of inquiry, he first noticed a significant miswording in the paper describing the methodology. He explained how what he did differed from what one might interpret from a reading of the paper because of this miswording. He offered to submit a correction to the editor of the journal that published the original paper. He also informed us that he received no NSF funds; he was supported by a university fellowship.

In several proposals, one of the professors referred to the paper as resulting from prior NSF support. We learned from him that he was describing his *related* research, not strictly research supported by NSF. He told us that the research reported in the paper was completed before he received his NSF award. We concluded that NSF funds had not supported this research and we lacked jurisdiction in this case. We, however, agreed with the graduate student's offer to write a correction and recommended that the professors and graduate student coordinate their response. This case showed how poor communication between coauthors can result

in misleading or defective scientific publications. We suggested that a closer working relationship between the professors and their graduate student, which should have included the professors verifying the graduate student's methodology and results, could have prevented allegations of fabrication or falsification. We cautioned one professor that more care should be exercised in the preparation of his proposals.

Reconsideration of Case Settled by Other Federal Agency Not Warranted

Because of special circumstances outlined below, we decided not to pursue a misconduct in science allegation. The factual basis of the allegation had already been treated and resolved by another federal agency, the DoEd Office of Civil Rights (OCR), as a matter of gender discrimination.

The subject of the allegations was the head of a university-affiliated research facility. The complainants were two female researchers. Among the complainants' allegations of gender discrimination were that the subject had attempted to destroy a female scientist's data and that he had arbitrarily denied a female scientist access to equipment necessary for her research. We concluded that, depending on the facts of the case and regardless of whether

gender discrimination was involved, these alleged actions might prove to be sufficiently serious deviations from accepted practice in the scientific community to constitute misconduct in science. After OCR initiated a gender discrimination investigation, the university and OCR settled the complaint by agreeing that the university would improve its procedures for handling gender discrimination complaints, remove the subject from his position as director of the facility for 3 months, act to protect the interests of women whom the subject had allegedly harmed, and promise that neither the university nor its employees would retaliate against the complainants. The outlines of the settlement were made public. The complainants brought the case to us because they were dissatisfied with the OCR settlement.

We decided that reconsidering the facts in this case would have been warranted only if OCR’s resolution left NSF with a significant unresolved interest at stake or if OCR’s resolution, however adequate to the alleged gender discrimination, appeared to be grossly inadequate to the seriousness of the alleged misconduct in science. We determined that neither of these conditions was met. The subject’s alleged actions did not indicate that he could not be trusted to function as a PI or that some other, comparably compelling NSF interest was at stake. Because the subject suffered a brief suspension from his position as head of the facility and the stigma of a public sanction, we concluded that the results of OCR’s action could not be considered grossly inadequate. We concluded that, in the circumstances of this particular case, it would be inequitable for us to put the subject through a second federal proceeding by reconsidering the same factual allegations as possible instances of a different category of wrongdoing

TABLE 4: ASSURANCES AND CERTIFICATIONS RECEIVED*

Number of Cases Requiring Assurances at End of Period	6
Number of Cases Requiring Certifications at End of Period	10
Assurances Received During This Period	2
Certifications Received During This Period	4

* 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 Assistant Inspector General for Oversight 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 the OIG and are not known to, or available to, NSF program officials.

OVERSIGHT ACTIVITIES

NSF's Supplemental Ethics Rules Near Implementation

The Office of Government Ethics (OGE) finalized uniform Standards of Ethical Conduct for Executive Branch employees in 1992. Before OGE issued its Standards, NSF had crafted ethics standards that were tailored to NSF's unique circumstances. The OGE Standards were intended to replace the myriad ethics rules that individual agencies, including NSF, had issued. Agencies that wanted to supplement the OGE Standards were required to submit proposed supplemental standards to OGE for approval, which NSF did in 1992.

The government-wide ethics rules and statutes (in particular, 18 U.S.C. § 207) prohibit all former NSF employees from representing themselves or others before NSF ever, concerning particular matters in which the employees participated personally and substantially, and for 2 years concerning particular matters in which the employees had some measure of official responsibility but did not participate personally and substantially. Under the government-wide rules, only the most senior personnel are prohibited from representing themselves or others before NSF on

any matter for 1 year. Regarding this latter prohibition, NSF had a preexisting rule that prohibited all NSF employees, including NSF program officers, from representing themselves or others before NSF for 1 year after they left NSF. NSF's "1-year rule" was superseded when the OGE rules were finalized in 1992.

In Semiannual Report Numbers 5 (page 38) and 10 (page 43) we discussed our concern that OGE allow NSF to implement its supplemental standards, particularly the 1-year rule, which ensures that former NSF program officers cannot—and cannot even be perceived to be trying to—use their connection with NSF to obtain preferential treatment. Eventually, OGE and NSF reached agreement on NSF's supplemental standards, including the "1-year rule."

In this reporting period, NSF management approved the supplemental standards that had been worked out with OGE. NSF anticipates that, after a brief final review by OGE, the regulations will be published in the Federal Register in the next reporting period.

Monitoring Human Subjects Research

In an inspection reported in Semiannual Report Number 14 (page 68), we noted that several awards described human subjects research, but NSF's proposal jackets did not contain the required information documenting NSF's review of that research. During a recent inspection, we learned from the institution that it was tracking five NSF awards because human subjects were involved. When we reviewed NSF's award jackets, we found that several did not contain the information required to document NSF's review and approval of the human subjects research. Our queries to NSF's electronic database showed that some of these projects had not been properly recorded as involving human subjects research. We found that NSF's Proposal and Award Manual did not provide program officers with up-to-date instructions for reviewing and approving this research. Also, unlike NSF's electronic version of the "Action Processing Form," the paper version of this form that is placed in proposal jackets, did not contain information about NSF's review of the human subjects research. We informed NSF of the problems we encountered and expressed concern about

the reliability of the information in NSF's database. NSF issued an update to the Proposal and Award Manual that described the current process for reviewing and approving human subjects research and stated that it was changing the paper version of the "Action Processing Form" to be consistent with the revised language in the Proposal and Award Manual.

Some Foreign Social Scientists May Experience Difficulty in Obtaining U.S. Work Visas

NSF often employs "visiting scientists" to assist in its work. Most scientists who work at NSF are U.S. citizens, and those who are not are required to certify that they possess an appropriate visa from the Immigration and Naturalization Service (INS) before they can be hired. During this reporting period, OIG extended an offer of employment to a Canadian sociologist to assist in a study of misconduct in science policies and procedures at American universities. The problems associated with hiring this scientist identified effects of recent trade legislation that were apparently unanticipated by NSF.

The North American Free Trade Agreement (NAFTA), which became effective on January 1, 1994, controls the entry of Mexican and Canadian citizens into the United States. NAFTA, and its implementing regulations, specify the occupations of persons who can be admitted into the United States for temporary employment with a “Trade-NAFTA” (TN) visa issued by INS. “Social scientists” are not included on that list. As a result, the sociologist, who had received a written offer of employment from NSF, was denied a TN visa at the United States-Canada border by INS. This individual’s situation was ultimately resolved, but we expressed concern to NSF’s Division of Human Resources (HRM) about NAFTA’s effects on NSF’s ability to hire foreign nationals—particularly in the Directorate for Social, Behavioral, and Economic Sciences (SBE).

We recommended that HRM train a member of its staff to provide services in support of the employment of foreign nationals or, in the alternative, notify both prospective employees who are not U.S. citizens and NSF’s operating units that responsibility for obtaining visas that permit U.S. employment is fully that of the prospective employees. We also recommended that HRM notify NSF program staff, particularly in SBE, that NAFTA does not include social scientists in the list of occupations eligible for employment in the United States.

Because NSF does not regularly hire noncitizens, HRM declined to train a member of its staff to handle the entry of foreign nationals who have been offered employment at NSF. HRM has identified key Office of Personnel Management and INS staff who can provide advice on these matters. HRM also agreed to notify NSF staff about possible problems associated with hiring Mexican and Canadian citizens and to clarify NSF’s employment documentation so that all offers of employment to Mexican and Canadian nationals are contingent upon obtaining an appropriate visa from INS.

INSPECTIONS

Our inspections are on-site reviews conducted at NSF or at organizations that receive NSF funding. Inspection findings and recommendations highlight what works well and identify problems or deficiencies so that managers at NSF and the funded organization can improve their operations and better achieve research and education goals. Inspection teams look for early indications of financial, administrative, or compliance problems so they can be addressed before they become so serious that their resolution requires an audit or investigation.

We designed our inspections program to improve our understanding of NSF's grantee activities by integrating financial, administrative, and program analyses in a single review. We view inspections as an effective approach because they allow us to determine whether NSF's program goals are being achieved as well as review the financial and administrative management of NSF awards. Inspections are conducted by multidisciplinary review teams that may include scientists, engineers, auditors, computer specialists, investigators, lawyers, and management/program analysts.

We completed four inspections during this reporting period: one was of an NSF Experimental Program to Stimulate Competitive Research (EPSCoR) Award in the southeast, one was an Urban Systemic Initiative (USI) at a public school system in the midwest, and two were at public universities in the south-central region and in the northeast. Awards from the Directorates for EHR; Biological Sciences (BIO); and Geosciences served as the bases for our inspections.

All of these inspections began after October 1, 1995, which was the effective date of NSF's Investigator Financial Disclosure Policy.

Inspection of an NSF Experimental Program to Stimulate Competitive Research

NSF's EPSCoR Program makes awards to universities in 18 states¹ and the Commonwealth of Puerto Rico under an annual operating budget of about \$36 million. Between FYs 1980 and 1995, NSF's total funding to all of its EPSCoR programs was about \$153 million. The National Science Foundation Authorization Act of 1988 limits eligibility to those states that "(1) historically have received relatively little Federal research and development funding; and (2) have demonstrated a commitment to develop their research bases and improve science and engineering research and education program[s] at their universities and colleges."

The focus of this inspection was one of the first five states to receive funding in 1980 at the inception of NSF's EPSCoR Program. We examined the organization and operations of this State's EPSCoR Program, including the State EPSCoR Committee and the State EPSCoR Program Office. We focused on

financial, administrative, and performance management with an aim to identify problems unique to EPSCoR in complying with applicable federal and NSF requirements. Our review was based on four grants awarded by NSF's Directorate for EHR through NSF's EPSCoR Office. These grants totaled about \$5.5 million and included a planning grant, a 2-year continuing grant that supported two research components in the biological sciences, a 3-year continuing Advanced Development Program (ADP) award that supported eight research clusters, and an Industry Graduate Research Traineeship (GRT) award. We concentrated our review on the current ADP award that supports 59 targeted faculty in 8 interdisciplinary groups of researchers, called research clusters. Under the ADP award, this State's EPSCoR Committee supports four research clusters at each of two State universities. One university (university one) acts as the fiscal agent for the State EPSCoR Program, and the other university (university two) is considered a subawardee.

¹ These states are Alabama, Arkansas, Idaho, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, North Dakota, Oklahoma, South Carolina, South Dakota, Vermont, West Virginia, and Wyoming. Source: 1995 NSF EPSCoR Program Solicitation (NSF 95-41).

The State EPSCoR Committee has a unique and challenging role in coordinating and ensuring the success of the State EPSCoR Program. The Committee consists of academic, State government, and private sector representatives, and is responsible for coordinating the state-wide EPSCoR Program and for conducting a peer review process to screen proposals submitted by PIs in the State. The goals of the EPSCoR Committee are essentially the ultimate goals of the federal EPSCoR Program. This State's major objectives in attaining full competitiveness in science and engineering are faculty development, human resource development (HRD), and bridging state/university/industry science and engineering interests.

In our interviews with State EPSCoR Committee members, including the current Chair, the EPSCoR Project Director, university administrators, and participating faculty members, there was general agreement that all three overall goals had been successfully addressed. However, there was a strong feeling that the goals of faculty development and HRD had been more fully addressed than bridging state/university/industry interests. Plans were underway to emphasize this latter objective.

We concluded that the strategic institutional goals for research competitiveness at the participating institutions implement the State's faculty development goals for NSF's EPSCoR awards. Further, as measured by the number of new doctoral research programs since NSF's first EPSCoR awards to this State, the two participant universities have improved their research competitiveness. We found the PIs, the other targeted faculty members, postdoctoral fellows, as well as graduate and undergraduate students in each cluster made up a cohesive interdisciplinary research unit. The faculty and other members of the research clusters told us their laboratories met their needs for instrumentation, computers and space, and they described their research laboratories as clean and well-maintained. We confirmed this assessment during our visits to the laboratories and determined that the environments within the eight research clusters and the institutional environments are likely to maximize the productivity of NSF's funds for research and education. It is also plausible to predict positive effects of these environments on the State's goal of bridging state/university/industry relations, provided that the State and industry within the State had ready access to or participated in the cluster research.

We were impressed with the numerous programs and the range of activities that are actively managed by the State EPSCoR Program Office to increase the number of individuals who pursue careers in science, mathematics and engineering. The State EPSCoR Program Manager's personal commitment and keen interest in recruiting and retaining members of underrepresented groups provides exceptional motivation and enthusiasm for achieving the HRD goals of the State's EPSCoR awards.

Measures of Accomplishment for NSF's EPSCoR Program

We recommended that NSF's EPSCoR Office establish with the State EPSCoR Committee mutually agreed-upon overall measures of accomplishment for NSF's EPSCoR awards.

In response, the Assistant Director for EHR said that the NSF EPSCoR staff and the State EPSCoR Program's leaders have mutually agreed-upon benchmarks of achievement for the research clusters that will be addressed specifically in the State's EPSCoR award. In addition, the required use of external science and technology advisory boards will help establish standards of research quality and productivity for the EPSCoR-supported research clusters. Broad-based science and

technology policy issues will also be included, and the degree to which these are accomplished will form the basis of future EPSCoR support. To ensure that all parties understand the exact terms of these measures, the NSF EPSCoR staff has required that representatives from the participating universities, the Chair of the State's EPSCoR Committee, and a representative of the fiscal agent sign the cooperative agreement to be used in making the next award.

Administrative Compliance Review

We concentrated on those areas of administrative compliance that were most closely related to the conduct of research, that is, misconduct in science and investigator financial disclosure; and, at university two, we limited our review to these areas. Because university one is the fiscal agent for NSF EPSCoR awards, we also assessed its compliance with requirements for lobbying certification and reporting, spoke with officials about drug-free workplace and equal employment opportunity, and determined that university one has adequate policies and procedures in place in these areas. We also focused on the affirmative action aspects of this NSF EPSCoR Program.

Both universities had conflict-of-interest policies and financial disclosure systems that met the requirements of NSF's Investigator Financial Disclosure Policy. We commended both universities for implementing timely, complete, and clearly described disclosure systems.

Misconduct in Science and Engineering

We found that both institutions had policies and procedures in place for handling allegations of misconduct in science. We did make recommendations to university two to strengthen its policy.

Data Collection and Retention

University two agreed with our recommendation to develop and issue an official policy governing access and retention of research records within 90 days of receipt of the final NSF/OIG report.

NSF Data on the EPSCoR Program

As a result of our review of the EPSCoR Program, we were concerned about the quality of communication among NSF, NSF's data collection contractor, and the State EPSCoR Program office staff; we were also concerned about the resultant quality of management information supporting the ADP HRD. Although we did not review or assess NSF's EPSCoR data collection process in this

inspection, we believe our experience and the comments we received from the State EPSCoR staff about their experience with the NSF contractor provide sufficient basis for concern. We recommended that NSF's EPSCoR Office look into the concerns raised in our report about the schedule and procedures used by the contractor to collect NSF EPSCoR program data; how these data are subsequently categorized and presented; and the overall quality of the data that are being collected and maintained.

The Assistant Director for EHR agreed that the collection of quantitative information needed to monitor and assess EPSCoR programs should, to the extent possible, be collected within a reasonable time. Upon his instructions, the EPSCoR staff have reviewed the current data collection schedules and report that the programmatic data collected each year have adequate "lead times." Special requests, however, for detailed program information from Congress, the Office of Science and Technology Policy, and NSF management often require a "drop everything else-do it now" mentality that is a new experience for the EPSCoR participants. The EPSCoR initiative is a highly visible congressional initiative that places special demands on the NSF staff that administers it

and the participants who benefit from its existence. The Assistant Director for EHR said he has instructed the NSF EPSCoR staff to redouble its efforts to develop a reporting system that is less onerous to its customers, yet capable of meeting external reporting pressures.

Financial Controls

We limited the scope of this portion of the inspection to testing accounting and administrative controls related to the ADP award at both universities. Both universities generally complied with NSF's award documents, the Grant Policy Manual, the Grant General Conditions, and other federal requirements. Both universities appeared to have effective accounting systems to record the substantial cost-sharing required by NSF's EPSCoR Program. Although we also found that university one appeared to have adequate control over university two's (the subawardee) financial expenditures for the EPSCoR award, we recommended that these controls be formally spelled out in a written subcontract agreement, and the university agreed to do this. We also identified three instances of noncompliance and internal control weaknesses at university one for which we made corrective recommendations.

Inspection at a Public School System in the Midwest

This inspection was based on a cooperative agreement made by NSF's EHR in support of an USI. The overall purpose of the USI program, in the words of the program announcement, is to change the system of education that has left urban students ill-equipped with "the scientific and mathematical literacy to participate fully in a technological society." USI awards are supposed to coordinate changes in policies, curriculum, and instructional practices of the public schools and mobilize community leaders and institutions to improve student achievement, especially for members of traditionally underserved groups.

NSF program officials are actively involved in managing this award. They seek to spur the school system's administrators to develop an articulated strategy for systemic reform by posing hard questions about project plans, and they monitor project results closely. NSF officials leave project executives room to exercise judgment, but can be directive about project management, especially when officials believe that research yields clear conclusions about whether a reform strategy is effective. Although NSF officials had made several controversial decisions that affected project

operations, we were impressed that project executives, though they had some complaints, were generally happy with the way NSF managed the project. In some cases, school system officials said that NSF pressure had enabled them to redirect their efforts in ways that were programmatically beneficial, observing that it would have been politically impossible to effect these changes without such pressure.

Financial Controls

The public school system generally complied with the cooperative agreement's terms and conditions as well as NSF's and other federal award requirements. We made recommendations to increase compliance and strengthen internal controls in several areas.

Cost Sharing. The public school system identified teachers' salaries as the source of almost all of the \$11.4 million it proposed in cost sharing for the cooperative agreement without demonstrating how the teachers' efforts contributed to the USI award's goals. Teachers' salaries are routine operating expenses to the school district and do not necessarily represent either an increased commitment to the cooperative agreement's objectives or the leveraging of other funds available to the school system to help further

the USI award's purposes. We recommended that, if the public school system and NSF wished to continue treating these salaries as cost sharing, the school system would need to improve existing documentation to demonstrate that these salaries are allowable cost sharing. However, we noted that in our opinion, regardless of whether these salaries are allowable as cost sharing, the costs of treating them as cost sharing and generating the necessary documentation to support this treatment may outweigh the benefits. The public school system responded that it eliminated teachers' salaries from its cost-sharing report and submitted a revised schedule of promised cost sharing to NSF after the inspection.

We also recommended to NSF that EHR and DGA ensure that all future awards and amendments reflect only the cost-shared amounts that are eligible in accordance with OMB Circular A-110 and that meet the USI program objectives. The Assistant Director for EHR responded that he intends to comply with the recommendation and has directed NSF's Division of Educational System Reform to work with DGA to ensure compliance on all existing and future USI awards. NSF's Chief Financial Officer responded that the program solicitation and

cooperative agreement provided sufficient guidance on cost-sharing requirements. He noted that NSF program officials and DGA officials will continue to review proposed cost sharing for eligibility, ensure that the sources and proposed uses are carefully documented, and require that cost sharing be certified and signed annually by an authorized organization representative.

Participant Support Costs. The public school system appeared to be behind schedule in its spending for participant support activities. We attributed underspending in this category to changes in program activities, entry of an inaccurate expenditure target in the accounting records, and incorrect identification of budgeted “other direct costs” as “participant support costs.” After our inspection, the public school system reclassified some of its inaccurately recorded participant support costs and revised its schedule for participant support costs to reflect actual participant support activities.

PI Financial Disclosure Policy

School system officials were unaware of NSF’s Investigator Financial Disclosure Policy, and the school system’s conflict-of-interest policy did not meet the requirements described in NSF’s Policy. We referred school system officials to NSF’s Office of General Counsel for guidance. In consultation with that Office, the school system responded that it has developed procedures to comply with NSF’s Policy. The school system had not submitted the required certification regarding investigator financial disclosure along with its May 1996 funding increment request, and we informed school system officials that NSF’s policy requires that certification be made before the next increment of funding can be awarded.

Authorized Organizational Representative

Authorized Organizational Representatives (AORs) are responsible both for ensuring that institutions adhere to NSF’s award terms and conditions and for making certifications of compliance with federal rules regarding debt status, debarment and suspension, drug-free workplace, lobbying activities, and also with NSF’s Financial Disclosure Policy. The official the school system designated as the AOR to NSF did not understand the responsibilities his position entailed. We

recommended that, because the school system's AOR has other leadership responsibilities that preclude him from giving the AOR position the attention it requires, the school system should name a different official to be AOR. The school system responded that it had done so after this inspection. We also recommended that NSF's Division of Contracts, Policy, and Oversight establish and disseminate to grantees additional guidelines regarding the role of the AOR. NSF's Chief Financial Officer stated that the existing guidance on AORs in the Grant Policy Manual was sufficient, but agreed that NSF should assist grantees in fully understanding the importance of an AOR position when there are indications that a problem may exist. He also said that the Division of Contracts, Policy, and Oversight will emphasize the importance of grantee designation of AORs in its outreach programs for new and inexperienced grantees.

Inspection at a State University in the South-Central Region

This inspection was based on 11 NSF awards. NSF's BIO made 10 basic research awards, and NSF's EHR awarded 1 GRT grant.

Financial Controls

The university generally complied with NSF's and other federal award requirements. We made recommendations to increase compliance and to strengthen internal controls in several areas.

Unallowable Charges. The university charged employees' and local participants' meal costs to an NSF grant. These meals were not an integral part of a meeting or conference. The university agreed that charges to the grant for these meals were unallowable costs. The university said that its policy for employee meals is consistent with and supportive of NSF's requirements and noted it has made the appropriate credits and adjustments to the general ledger and the Federal Cash Transactions Report, as we recommended.

Personnel Activity Reports. The university did not require Personnel Activity Reports (PARs) for graduate students that receive traineeships under a GRT grant. These traineeships provide stipends and a cost of education allowance and allow graduate students to participate, as research assistants, with senior investigators in scientific and engineering research. Also, the university's PAR payroll distribution system was only updated to reflect significant changes in work distribution; it did not provide an annual after-the-fact confirmation report of its PAR payroll distribution system as required by OMB Circular A-21. The university agreed with our recommendations to complete PARs for graduate research assistants, student teaching assistants, and graduate assistants and has modified its annual certification report form to provide space for the date of the certification.

Minority Recruitment

One objective of the GRT program is to build an infrastructure that is capable of promoting and sustaining an increased flow of underrepresented minorities, women, and disabled students into graduate study. The PIs' efforts to recruit minority students as trainees under the award were less than the PIs had described in their proposal. For example, although the proposal indicated that

students at minority institutions would be targeted for GRT recruitment, of the seven institutions visited for recruitment purposes, none were minority institutions. We recommended that the university ensure that the PI and co-PIs for this award focus on recruiting minorities for the five unfilled positions, document their efforts to establish long-term relationships with colleagues at minority institutions, and include several minority institutions in future recruitment visits as promised in their proposal. The university responded that the PI and co-PIs on this award had dedicated considerable effort to recruiting female and minority students at all levels to participate in "enhanced training . . . at the university." The university stated that, because these efforts have not been as successful in attracting minority undergraduate students as they have been in attracting female students, the PI and co-PIs intend to follow our recommendation and focus additional effort on minority recruiting.

Misconduct in Science

The university's policy for handling allegations of misconduct in science was more complete in its description of the individuals covered than other policies we have reviewed. For example, it correctly provides for processing allegations against not just faculty but also against staff, postdoctoral scholars, graduate students, or undergraduate students.

However, the policy did not explicitly discuss issues that must be addressed when assessing whether misconduct has occurred. We made recommendations to strengthen the policy and broaden its visibility. For example, we recommended that the university consider including an evaluation of seriousness and an appeals process in its misconduct procedures and that it specify the level of intent and the standard of proof required for a finding of misconduct in science. We also recommended that the university reference its policy in appropriate university issuances, ensure that all personnel supported by research grants are informed of the policy, and consider ways to inform students of their rights and responsibilities. The university agreed with our recommendations and noted it will review and consider revising its policy and will increase awareness of the policy. The university also said that it would be useful if

NSF provided institutions with guidance regarding standards to be applied, especially with respect to the level of intent and evaluation of seriousness.

Other Recommendations

- The university concurred with our recommendation that it issue a written policy on the retention of research records and that the policy be distributed to its faculty members. It indicated it will develop a policy after it finishes collecting information and reviewing models from other institutions.
- In this inspection and a prior one, we found that there were students who were being supported by NSF's Research Experiences for Undergraduates program who did not meet the U.S. citizen or permanent resident eligibility requirements. NSF's Assistant Director for BIO said in response that she planned to recommend that BIO require that all Program Officers contact the PI before award notification and reiterate the eligibility criteria.

Inspection at a State University in the Northeast

This inspection included eight NSF grants made by NSF's Directorate for Geosciences. All were basic research awards from the Division of Atmospheric Sciences for the study of the earth's climate and upper atmosphere. Our inspection focused on an institute at the university. The institute's mission is to bring together faculty members with different specialties to foster interdisciplinary collaborative research. To do this, the institute is located in a separate building and has its own budget and support staff. To encourage broad acceptance of the institute, all of the institute faculty members remain affiliated with a department, even when they are housed in the institute. In this way, the institute remains closely tied to the broader university department structure, while providing an environment that successfully encourages interdisciplinary research.

Misconduct in Science and Awareness of Ethical Issues in Science

The deficiencies in the university's policies and procedures for handling allegations of misconduct in science were so numerous that, in contrast to our usual practice, we would not be able to defer to the university an inquiry or investigation into allegations against an NSF-supported faculty member or student. For example, the university's procedures provided for two inquiries in every case. After the first inquiry's determination that an allegation had substance, a second inquiry committee would be formed to further evaluate the allegation without any notification of NSF. If the second inquiry found substance, the matter could be adjudicated, including sanctions imposed, without an investigation and without notification of NSF. Further, if NSF referred an allegation of misconduct in science to the university, it is not clear whether a substantive allegation might be adjudicated without a full investigation and an adequate investigation report to NSF that contained sufficient information to evaluate the proceedings, including any sanctions imposed. In addition, the policy did not specify a standard of proof to be used during an investigation and did not include any protection of complainants from retaliation. Finally, the university did not

articulate a general definition of misconduct in science but, instead, only listed examples of misconduct. Most of the faculty members we spoke with were aware that the university had a policy but were not familiar with its contents or where the policy was located, while NSF-supported students were unaware of a policy. As a result of our recommendations, the university stated that it intends to draft a new policy that will conform to NSF's regulation for handling allegations of misconduct in science, and that, when final, the new policy will be widely distributed to the university community.

The faculty members we interviewed were not aware of any university initiative to assist faculty members or students with issues related to the ethics of science and engineering practices. We recommended that the university take the lead in increasing faculty and student awareness of ethical issues in science, and, since the inspection, the university has recognized nine courses, ranging from first year to upper level, that are designed to heighten student awareness of ethical issues in science. Also noted in the response was that one college within the university offers several graduate seminars that address ethics and social issues in science. The University stated that it recognizes the importance of ethics

education, and it will continue efforts to increase this awareness among both students and faculty members.

Data Retention and Collection

The university had only a draft policy on *The Ownership and Retention of Research Data*. From previous and unrelated interactions with this university, we knew that this policy has been in draft form since at least 1994. We recommended that the university officially adopt and then widely disseminate its final policy. The university stated that it will proceed with final discussions and promulgation of its draft policy and, when final, the policy will be widely and frequently distributed.

Financial Controls

The university generally complied with NSF's and other federal award requirements. However, we did identify two instances of noncompliance for which we made recommendations for corrective action. The university inappropriately allocated costs on one NSF grant and could not explain its method of allocating costs to another NSF grant. The university acknowledged that PIs must allocate grant costs based on the proportional benefit that each grant receives and agreed with our recommendation to inform all PIs

about appropriate cost allocation methods. The university's administrative personnel did not have a suitable means of verifying employees' work as reported on their PARs. Administrative personnel who signed PARs included a departmental secretary and business managers who did not supervise the employees and did not have first-hand knowledge of the employees' scientific work. For example, at the end of a semester, 1 business manager signed PARs for over 100 employees, and another manager signed for 60 employees. We recommended that the university have the actual employee; the PI; or someone who is familiar with, and involved in, the research project sign the PARs. The university responded that it does require that the individual who signs the PAR be knowledgeable about the effort of the person compensated. In some cases, PIs have designated their signature authority to individuals, typically business managers, who are intimately familiar with their research projects and the effort expended on those projects.

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	16,535,000
B. Recommendations that were issued during the reporting period (these were issued in eight reports)	33,193,481
Subtotal of A+B	49,728,481
C. For which a management decision was made during the reporting period	12,343,381
(i) dollar value of recommendations that were agreed to by management	
<i>based on proposed management action</i>	8,683,381
<i>based on proposed legislative action</i>	0
(ii) dollar value of recommendations that were not agreed to by management	3,660,000
D. For which no management decision had been made by the end of the reporting period	37,385,100
Report for which no management decision was made within 6 months of issuance	8,025,000

Audit Reports Issued With Questioned Costs

	Number	Questioned Costs	Unsupported Costs
A. For which no management decision has been made by the commencement of the reporting period	63	9,488,544	3,812,974
B. That were issued during the reporting period	28	493,919	303,920
C. Adjustments to questioned costs resulting from resolution activities	2	700	18
Subtotal of A+B+C	93	9,983,163	4,116,912
D. For which a management decision was made during the reporting period	20	372,147	17,567
<i>(i) dollar value of disallowed costs</i>	N/A	188,806	N/A
<i>(ii) dollar value of costs not disallowed</i>	N/A	183,341	N/A
E. For which no management decision had been made by the end of the reporting period	73	9,611,016	4,099,345
Report for which no management decision was made within 6 months of issuance	45	9,117,097	3,795,425

Additional Performance Measure

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 investigation units.

Tables that provide statistics concerning these required performance measures are on pages 29, 32, 67, and 68. GAO and OMB suggested that Offices of Inspector General develop additional performance measures that provide information about their activities. As a result, we developed an additional performance measure to better explain the work of our office.

OIG staff members regularly review NSF's internal operations. These reviews often result in systemic recommendations that are designed to improve the economy and efficiency of NSF operations.

We routinely track these systemic recommendations and report to NSF's Director and Deputy Director quarterly about the status of our recommendations. The following table provides statistical information about the status of all systemic recommendations that involve NSF's internal operations. The statistics demonstrate that NSF management has generally agreed to resolve our systemic recommendations in a reasonable manner.

Status of Systemic Recommendations That Involve Internal NSF Management

Open Recommendations

Recommendations Open at the Beginning of the Reporting Period	59
New Recommendations Made During Reporting Period	17
Total Recommendations to be Addressed	76

Management Resolution² of Recommendations

Recommendations Awaiting Management Resolution	15
Recommendations Resolved by Management	61
Management Agrees to Take Reasonable Action	76
Management Decides No Action is Required	0

Final Action³ on OIG Recommendations

Final Action Completed	29
Recommendations Open at End of Period	47

² "Management Resolution" occurs when management completes its evaluation of an OIG recommendation and issues its official response identifying the specific action that will be implemented in response to the recommendation

³ "Final Action" occurs when management has completed all actions it had decided are appropriate to address an OIG recommendation.

Aging of Open Recommendations

Awaiting Management Resolution:

0 through 6 Months	15
7 through 12 Months	0
more than 12 Months	0

Awaiting Final Action After Resolution

0 through 6 Months	2
7 through 12 Months	19
13 through 18 Months	6
19 through 24 Months	0
more than 24 Months	5

Recommendations Where Management Decides No Action Is Required

None to report during this period.

Recommendations Awaiting Management Resolution for More Than 12 Months

None to report during this period.

Recommendations Awaiting Final Action for More Than 24 Months

Report Title	Date	Issue
Review of NSFNET	03/23/93	Audit of Infrastructure Account
NSF Ethics Regulation	03/31/93	Issuance of Final Regulation
Integrity of Confidential Peer Review Process	09/29/93	Issuance of Formal Guidance in Writing
Review of Proposal Processing Times	09/27/94	Ability to Provide Proposal Status Electronically

List of Reports

NSF and CPA Performed Reviews

Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds
96-1029	Private Research Organization	0	0	0
96-1030	Museum	1,506	0	0
96-1031	Private Nonprofit Organization	337,377	283,173	0
96-1032	Participant Support at Midwest University	64,633	0	0
96-6003	Educational Nonprofit Corporation	1,000	0	0
96-6004	Small Business Grantee	0	0	20,000
96-6005	Small Business Grantee	0	0	126,000
96-6006	Small Business Grantee	0	0	75,600
96-6007	Small Business Grantee	0	0	43,600
96-6008	Federally Funded Research and Development Center	0	0	666,900
96-6009	Small Business Grantee	0	0	0
96-6010	Small Business Grantee	0	0	28,000

Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds
96-2109	International Phase of ODP	0	0	0
96-2110	Management Trust Fund Financial Report for Fiscal Year Ending 9/30/95	0	0	0
96-2111	Fees Paid to Nonprofit Institution From Other Agencies	0	0	0
96-2112	Contractor's Worker Compensation Claims	0	0	58,381
96-2113	Review of Contract Awarded for Support Services	4,054	0	0
96-2114	Donation or Sale of Excess Computer Equipment	0	0	1,375,000
96-2115	Recommended Amendments to NSF Procedures to Avoid Paying Costs Associated with State Sales Taxes	0	0	20,000,000
96-2116	Tariff Duties on Telescope Project	0	0	1,100,000
96-2117	Electronic Information Dissemination as a Goal Under GPRA	0	0	7,500,000

NSF Cognizant Audits

Number	Subject	Questioned Costs	Unsupported Costs
96-4047	Federally Funded Research and Development Center	0	0
96-4048	Science Council	0	0
96-4049	Nonprofit Research and Conservation Organization	0	0
96-4050	Space and Science Foundation	0	0
96-4051	Research Institute	0	0
96-4052	Teachers Association	0	0
96-4053	Science Institute	0	0
96-4054	Research Institute	0	0
96-4055	Nonprofit Educational Organization	0	0
96-4056	Federally Funded Research and Development Center	0	0
96-4057	Teachers Association	0	0
96-4058	Nonprofit Communication Organization	0	0
96-4059	Science Museum	25,036	0
96-4060	Educational Center	0	0
96-4061	Research Corporation	0	0
96-4062	Science Society	0	0
96-4063	Science Institute	22,942	14,453

Number	Subject	Questioned Costs	Unsupported Costs
96-4064	Western Museum	0	0
96-4065	Research Consortium	1,927	0
96-4066	Science Society	2,144	0
96-4067	Research Organization	29	0
96-4068	Science Institute	0	0
96-4069	Educational Organization	1,400	0
96-4070	Nonprofit Community Organization	1,256	0
96-4071	Science Institute	87	0
96-4072	Nonprofit Economic Research Organization	0	0
96-4073	Association of Colleges	3,522	0
96-4074	Science Society	2,338	2,338
96-4075	Science Institute	899	0
96-4076	Observatory	60	0
96-4077	History Museum	781	0
96-4078	Southwest Museum	715	0
96-4079	Seismology Institute	397	0
96-4080	Science Center	6,778	0
96-4081	Science Institute	0	0
96-4082	Science Organization	0	0
96-4083	Research Corporation	0	0
96-4084	Environmental Foundation	0	0
96-4085	Science Organization	0	0
96-4086	Education Association	0	0

Other Federal Audits

Number	Subject	Questioned Costs	Unsupported Costs
96-5165	University in the Midwest	2,693	0
96-5166	Association for Sciences	2,147	0
96-5187	University in the Southwest	846	846
96-5193	University in the Southeast	2,120	0
96-5198	State in the West	115	115
96-5210	University in the Midwest	1,350	0
96-5229	University in the Midwest	5,767	5,100

Audit Reports With Outstanding Management Decisions

This section identifies audit reports involving questioned costs and funds put to better use where management had not made a final decision on the corrective action necessary for report resolution within 6 months of the report's issue date. At the end of the reporting period, there were 45 audit reports with questioned costs and 5 reports with recommendations for funds to be put to better use that were not resolved. The status of systemic recommendations that involve internal NSF management are described on page 69.

Report Number	Title	Date Report Issued	Dollar Value	Status
Items Involving Questioned Costs				
94-1038	Aurora Flight Science Corporation	08/08/94	207,482	1
94-1046	Apeldyn Corporation	09/08/94	19,820	1
94-1067	Better Education, Inc.	09/30/94	17,563	4
94-1070	Chemludens	09/30/94	72,952	4
95-1022	BBN Laboratories	03/06/95	122,067	2
95-1028	General Atomics	03/27/95	2,933,428	3
95-1042	Mr. Wizard Foundation	03/31/95	157,780	3
95-1045	H-Tech Laboratories	03/31/95	11,821	1
95-1048	Virginia State Department of Education	09/01/95	317,664	1
95-1051	ASA Edison Chouest Offshore, Inc.	09/15/95	646,266	3
95-4077	Playing to Win	09/05/95	24,260	1
95-5599	University of Hawaii	06/13/95	31,104	5
95-5645	University of Hawaii	06/21/95	7,297	5
95-5722	State of South Dakota	09/22/95	113,204	1
95-6003	Zoological Society of America	09/12/95	996	6
96-1002	North Carolina Department of Administration	10/01/95	181,459	1
96-1003	Texas Education Agency and University of Texas	11/14/95	514,268	1

Report Number	Title	Date Report Issued	Dollar Value	Status
96-1004	New Jersey Department of Education	01/30/96	584,460	1
96-1008	Santa Ana Unified School District	01/09/96	3,481	1
96-1009	Society of Automotive Engineers	03/26/96	33,962	2
96-1012	Network, Inc.	03/15/96	35,899	1
96-1014	American Educational Research Association	03/20/96	211,879	1
96-1015	Blackfeet Community College	03/29/96	258,955	1
96-1018	Woodrow Wilson National Fellowship	03/27/96	24,657	2
96-1020	Montana State University	03/28/96	11,812	2
96-1021	Little Big Horn College	03/28/96	67,452	2
96-1022	Civil Engineering Research Foundation	03/28/96	24,625	2
96-1023	Delaware State Department of Public Instruction	03/28/96	465,507	1
96-1024	College Board	03/28/96	171,663	1
96-1025	Franklin Institute Science Museum	03/28/96	237,678	1
96-1026	Council for Basic Education	03/28/96	307,518	1
96-1027	Abt Associates	03/28/96	828,915	2
96-1028	Prince George's County Public Schools	03/29/96	182,544	1
96-4013	Bermuda Biological Station	03/17/96	21,605	1
96-4014	Bermuda Biological Station	03/17/96	1,500	1
96-5004	MPC Corporation	03/27/96	64,757	1
96-5007	University of Alabama	3/4/96	326	2
96-5016	University of Nevada System Administration	03/06/96	242	2

Report Number	Title	Date Report Issued	Dollar Value	Status
96-5024	University of Wisconsin	03/06/96	177,669	2
96-5034	Harvard University	03/13/96	719	2
96-5037	American Indian Higher Education Consortium	03/25/96	1,030	2
96-5040	New Mexico Mesa, Inc.	03/20/96	18,302	2
96-5069	American University	03/21/96	18	1
96-5108	Colby College	03/27/96	431	2
96-5143	Grand Valley State University	03/28/96	60	1

Items Involving Funds Put to Better Use

95-1018	Logistics Issues Related to the Antarctic Program	05/31/95	4,000,000	3
95-6039	Fees Paid to Nonprofit Organization	09/27/95	925,000	5
96-2106	National Bureau of Economic Research	03/29/96	800,000	3
96-2104	Management Recommendations to Office of Polar Programs	03/29/96	1,000,000	3
96-6001	Fees Paid to Nonprofit Organization	11/19/95	1,300,000	5

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 = Resolution pending negotiations
- 4 = Site visit required and scheduled
- 5 = Another federal agency must complete work before NSF can make final resolution determination
- 6 = Grant being amended