

**SEMIANNUAL
REPORT TO THE
CONGRESS**

number 8

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Office of Inspector General National Science Foundation

Semiannual Report
to the Congress

**OFFICE OF INSPECTOR GENERAL
NATIONAL SCIENCE FOUNDATION**

LETTER TO THE NATIONAL SCIENCE BOARD AND THE CONGRESS

This report describes our activities and accomplishments for the first half of fiscal year 1993. 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.

During this reporting period, we conducted our first inspection of an NSF grantee. We reviewed nine NSF grants at a state-supported university's biology department, including basic research awards and funding for equipment. Our auditors continued to review programs at universities and science centers, the Antarctic program, and science and engineering and education programs. Our legal staff made recommendations to revise the rules and procedures used by NSF when it shares the costs of research and education with grantee institutions and other organizations. In response to congressional concerns, we also evaluated the NSF-funded information highway, NSFNET.

We appreciate the National Science Board's continued support and encouragement. We would also like to acknowledge the assistance and support provided to our office by Dr. Walter Massey, who served as Director of NSF until April 5, 1993. During his tenure, Dr. Massey made important contributions to our effectiveness. We look forward to working with the Board and NSF's new Director to ensure the success of the agency's mission and operations.

Linda G. Sundro
Inspector General
April 30, 1993

Executive Summary

FINANCIAL AUDITS

Conducted audits of eight education grants to determine whether problems existed and how to best address any existing problems. Many new grantees were at risk of mis-managing funds because they did not have experience working under federal laws and regulations. Identified \$801,881 of costs charged by one education grantee that were disallowed (page 3).

Identified \$944,710 in additional questioned costs (page 57).

Reviewed grantees under the Small Business Innovation Research program to identify and correct problems before they become debilitating (page 5).

- Grantees overstated their expenditures and were wrongfully benefiting by using interest-free loans from the government to further their own business interests.
- We issued audit reports on 17 grantees and conducted training sessions with groups and individual entrepreneurs at regional Small Business Innovation Research conferences.

Reviewed 43 audit reports conducted under Office of Management and Budget Circular A-133. These audits were helpful, but inadequate in some areas. More on-site

quality control reviews are needed to determine whether audits are being conducted in accordance with Office of Management and Budget Circular A-133 requirements (page 8).

INVESTIGATIONS

Recovered \$49,369 (page 17).

Conducted a criminal investigation of a company that obtained double funding for a Small Business Innovation Research project by submitting identical proposals to multiple agencies (page 14).

Reviewed NSF's parking permit system and found that it was severely abused by car pool commuters. As a result of our review, NSF management has recommended administrative sanctions against 43 employees (page 18).

MISCONDUCT IN SCIENCE

In the journal *Science*, an OIG senior scientist discussed NSF's definition of misconduct in science (page 24).

INSPECTIONS AND EVALUATIONS

Conducted our first inspection at an NSF grantee site by reviewing nine grant awards that the state-supported university's biology department had received over

the last 5 years. We found no significant deficiencies in the financial, administrative, or program aspects of these grants, but identified and made suggestions to correct certain weaknesses (page 25).

Evaluated the NSF-funded information highway, NSFNET, at the request of the Subcommittee on Science, House Committee on Science, Space, and Technology. We made several recommendations to improve the networking program. As recommended, NSF agreed to obtain formal public comment concerning a critical aspect of the NSF network, and it agreed to form a Federal Coordinating Council for Science, Engineering, and Technology sponsored study group to increase coordination between NSF's and other agencies' computer networks (page 27).

Reviewed the rules and procedures that NSF applies when it shares the costs of research and education with grantees or other organizations. We found the underlying causes of a number of recurring problems that were identified in previous audits of NSF awardees involved in cost sharing. We recommended that the cost sharing rules be revised (page 31).

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ACRONYMS

AMP	Alliance for Minority Participants
AUP	Acceptable Use Policy
COV	Committee of Visitors
CPA	Certified Public Accountants
DAS	Division of Administrative Services
DGC	Division of Grants and Contracts
FCCSET	Federal Coordinating Council for Science, Engineering, and Technology
FCTR	Federal Cash Transactions Report
FFRDC	Federally Funded Research and Development Center
FNC	Federal Networking Council
GAO	General Accounting Office
GSA	General Services Administration
HPCA	High Performance Computing Act of 1991
IRM	Information and Resource Management
NASA	National Aeronautics and Space Administration
NCAR	National Center for Atmospheric Research
NSB	National Science Board
NSFNET	NSF's Computer Network
OGE	Office of Government Ethics
OMB	Office of Management and Budget
PCIE	President's Council on Integrity and Efficiency
PI	Principal Investigator
SBIR	Small Business Innovation Research

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

REPORTING REQUIREMENTS

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AUDIT

The Office of Audit is responsible for auditing grants, contracts, and cooperative agreements funded by NSF's programs and operations and for ensuring that reviews of financial, administrative, and programmatic aspects of activities are performed. The Office evaluates internal controls, reviews data processing systems, examines allegations of improper actions by NSF staff, and follows up on the implementation of recommendations included in audit reports.

All audit reports processed by the OIG are referred to NSF management for action or information. The Office of Audit advises and assists NSF's Division of Grants and Contracts (DGC) in resolving audit recommendations. The Office of Audit also assists NSF by acting 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.

AUDIT ACTIVITIES

In our last semiannual report, we discussed our strategic plan to meet the increasing growth and responsibilities of the Office of Audit. This plan included several activities and identified three areas supported by NSF that we would be addressing in the future. The three areas included reviews of (1) programs at universities and science and engineering centers, (2) the Antarctic program, and (3) science and engineering education programs.

University Audits

This 2-year program is intended to help us determine whether, and to what extent, we should audit NSF awards at universities where other federal agencies have single-audit responsibility. We initiated the program in response to the Senate Subcommittee on Government Affairs' concerns about whether university audits conducted under the Single Audit Act provide an adequate review of expenditures charged to NSF awards. During FY 1992, we completed reviews at eight universities. The reviews did not disclose significant questioned costs; however, they did find that universities were not complying with the NSF grants' rules and regulations. During this reporting period, we are completing eight more audits. These selective reviews at

institutions for which we do not have cognizance provide assurance that the single audits performed by the institutions' auditors are thorough and provide an adequate overview of the institutions' work under the NSF grants. We are preparing a summary report of the 16 university audits for our next semiannual report. When we have completed the summary report, we can decide whether it is necessary to schedule additional university reviews or whether we should concentrate on other segments of the grantee community where NSF provides a greater percentage of funding, such as science and engineering centers.

Antarctic Program

NSF is responsible for the overall management of U.S. operations in Antarctica. The Antarctic program supports research and provides U.S. presence in Antarctica under the auspices of the Antarctic Treaty. FY 1993 funding for this program is \$158 million, which will be used for research and logistic support. In addition, about \$64 million is provided to purchase an aircraft and to support environmental and health issues.

Although NSF staff members provide the program guidance, oversight, and funding for the Antarctic operations, the agency has hired a contractor to operate the stations; procure and ship supplies for subsistence and research in

Antarctica; construct and maintain the facilities in the Antarctic; subcontract for the ship that serves as a research vessel with icebreaking capability; manage research platform support; and assist in developing the camps, facilities, and research apparatus. During this reporting period, we began a financial and compliance audit of the contractor that provides this operational support. Our audit covers over \$168 million in claimed costs.

In June 1991, we visited the contractor's Denver, Colorado, office as part of a joint NSF/OIG systems review. We found that financial systems were in place and adequate to control federal funding. We are currently conducting our first in-depth review of the contractor's records to ensure that significant expenditures incurred for the program were properly spent. In addition, we are reviewing corrective actions that the contractor has taken on the findings and recommendations in the joint NSF/OIG review and the contractor's internal audit reports.

Because of the significant amount of funding and inherent risks in this program, we are conducting audits to assure NSF's Director, the Congress, and ourselves that this program is operating in accordance with applicable laws and regulations. We will continue our efforts and coordination with program and contracting staff in

identifying the need for additional audits, inspections, or site visits. As part of our continuing coverage, we will assist DGC on work conducted in New Zealand by the contractor that maintains the aircraft that serves the U.S. mission in Antarctica. This work will be conducted in September and October 1993.

Science and Engineering Education

We previously reported that Congress had increased funding for science and engineering education from \$171 million in FY 1989 to \$487 million in FY 1993. This has increased the number of new grantees that receive funding. Many of these new grantees do not have experience working under federal laws and regulations. This inexperience puts new grantees at risk of mismanaging funds. Therefore, we are targeting grantees that we believe may be at risk and are auditing their programs early so that corrective action can be taken before the program and the grantee's financial condition are harmed.

We conducted eight audits of selected programs to determine whether problems existed that needed to be addressed. A discussion of the eight audits follows.

NSF awarded a \$1,982,855 grant to a corporation to support the development of computer-based lessons on life, earth, and physical science. We questioned \$1,123,461 and found \$44,903 in interest due to NSF. Most questioned costs resulted from claimed costs that were to be shared by the grantee and NSF (see discussion on page 31). We also questioned claimed fringe-benefit costs that exceeded actual costs; costs that were erroneously charged to the grant; claimed costs that exceeded costs incurred; and costs that were claimed for unallowable subcontract costs. Since the report's issuance, NSF has determined that \$801,881 of the questioned costs was disallowed.

DISALLOWED COST

A questioned cost that management, in a management decision, has sustained or agreed should not be charged to the government.

NSF awarded an education association seven grants totaling \$1,585,701 to create instructional programs for math teachers. We questioned \$180,449. Salaries and fringe benefits were not supported by time and attendance records; consulting charges were not supported by written agreements or invoices for services rendered; source documentation was not maintained for direct costs; and the rates used to claim indirect costs exceeded final indirect cost rates. We recommended that the grantee require that written consulting agreements be submitted to support consulting charges. The grantee did not agree with the recommendation and therefore DGC will determine what actions the grantee must take to address the unresolved recommendation.

NSF awarded a \$1,490,624 grant to an organization to support the development and implementation of a computer-based teaching system. We questioned \$37,354 and requested the return of \$100 in interest earned on federal advances. The questioned costs resulted from labor and fringe-benefit costs charged that were associated with another federal award and material, supplies, and general purpose equipment that was inappropriately charged to the grant. We also found that the grantee had not placed a

lien on its bank account, which was required by the grant, and did not refund a premature advance of \$224,794 to NSF. DGC will resolve questioned costs, and we are recommending that a detailed review of the grantee's policies and procedures be performed before any further grants are awarded to the organization.

NSF provided a \$902,891 grant to an organization for the production of educational television programs. We questioned \$1,227. The questioned costs resulted from charges to NSF for a purchase order that was subsequently canceled and a lack of supporting documentation for some small purchases. We also found that the grantee was not maintaining cash advances in interest-bearing accounts and had not established formal cash management procedures to minimize the time between the transfer of funds from the U.S. Department of Treasury and the disbursement of those funds by the recipient. In response to the report, the grantee provided invoices and justifications for expenditures along with assurances that a property management system had been established, stated that cash advances were being deposited in interest-bearing accounts, and stated that monitoring of the cash drawdowns had been increased.

NSF awarded a \$450,000 grant to a museum to support a teachers' intern program. We questioned \$165,679 in expenditures and \$11,354 in interest due to NSF. The questioned costs resulted from claimed indirect costs that exceeded actual indirect costs; claimed expenses that were not anticipated in the original grant budget; and claimed costs that had been reimbursed under a Department of Education grant. In addition, we found that museum employees did not limit advances from federal funds to current needs, identify and segregate unallowable costs in accounting records, have written accounting procedures, or maintain records to support cost sharing requirements. We recommended that the museum remit \$11,354 in interest earned to NSF and require that employees develop written accounting procedures.

NSF awarded a \$378,075 grant to fund a 5-year training program for science teachers. We questioned \$15,869. A physical inventory to reconcile the property records with actual property on hand had not been taken; a written contract containing a description of the service to be provided, the estimated time required, and the rate of compensation had not been created; and the grantee did not maintain records to account for

in-kind contributions from nonfederal third parties. We recommended that the grantee perform a physical inventory, obtain written contracts from its consultants, and develop and implement a system that will identify and accumulate third-party contributions. The grantee responded to the report detailing the specific actions it will be taking to address each of the findings.

NSF awarded four grants totaling \$297,110 to a nonprofit society to support a series of research conferences and to provide partial payment to attendees for expenses incurred in attending those conferences. We questioned \$20,448. We found that advances exceeded the society's needs, advance payments were not deposited in interest-bearing accounts, and independent auditors did not conduct the audits required by Office of Management and Budget (OMB) Circulars A-110 and A-133. We recommended that advances be limited to current needs, the interest on the advance payments be calculated and remitted, and audits that comply with OMB Circulars A-110 and A-133 be conducted. The society responded by stating that it believed that the cost of the audits required under the OMB Circulars would take an unreasonable amount of funding. We will be pursuing this issue through discussions with DGC and the federal coordinating group for implementation of OMB Circular A-133 to explore possible remedies.

NSF awarded two grants totaling \$150,000 to a nonprofit organization to support publication of annual directories of scientific training programs. We questioned \$4,070. Both NSF grants had been charged to the same account. As a result, we could not identify which costs were applicable to each award, reconcile the amounts reported on the Federal Cash Transactions Report (FCTR) with the account ledgers, or determine the exact amount of income applicable to each award. We recommended that the grantee account for costs by grant, establish records that compare budgeted amounts for the grants with the amounts actually spent, and support payroll expenses with personnel activity reports or an alternative system. Despite the significance of the findings, we only questioned \$4,070 because we used alternative audit procedures to verify that expenditures had actually been made, and the grantee spent \$216,267 of its own funding in addition to the grant funding for the project.

Grantees Under the Small Business Innovation Research Program Reviewed

One of the areas we have previously reviewed and reported on in previous semiannual reports, but in which findings continue to be identified, is the Small Business Innovation Research (SBIR) program. The SBIR program was authorized under the Small Business Innovation Development Act of 1982 (Public Law 97-219, as amended) and the Small Business Innovation Research Program Reauthorization Act of 1992 (Public Law 102-564). It is intended to support high-quality research and to stimulate technological innovation in the private sector through support of small, science and technology-based firms. Assistance provided under the SBIR program facilitates exploration of the most advanced high-risk concepts, which may lead to a new generation of products and processes.

SBIR firms are usually small and do not receive substantial funding from NSF. Most firms do not have sufficient experience or knowledge concerning the requirements for conducting cost reimbursable work for the government and do not have resources to cover questioned costs and disagreements with the agencies that provide funding. Therefore, we continue to audit these

programs to identify and correct problems before they become debilitating. We also conduct training sessions with groups and individual entrepreneurs at three regional SBIR conferences each year.

During this reporting period, we issued audit reports on 17 SBIR grantees. Fourteen of those reports are summarized below with selected reports individually discussed following the summary, and the additional three reports are summarized on page 7. Of the 14 SBIR grantees reviewed, almost half overstated their expenditures, drew down funds that exceeded their needs for grant purposes, used grant funds for expenses that were not included in the budget, and did not keep funds in interest-bearing accounts or pay interest to the government for excess federal funds on hand. We found that some grantees were improperly benefiting by having interest-free loans from the government to further their own business interests.

We also found that the grantees were experiencing difficulty in adequately supporting expenditures for salaries, wages, and other costs. This may be a result of the small size of the companies and their informal business practices or their lack of experience in dealing with federal documentation requirements. Nevertheless, the grantees used federal funds without maintaining the documentation and support required under the grant's

rules and regulations. This requirement for documentation and adequate records is expected of all entities that work with the government.

Although many of the following summaries do not indicate that we identified significant questioned costs, we believe that the findings in the areas of compliance with federal rules and regulations, support of costs, and internal controls are significant and require continued attention. These kinds of findings indicate inadequate management of federal funds.

We are reviewing these conclusions to determine whether it is valid to apply them to all SBIR awards and whether stronger oversight of the grants' implementation and more stringent procedures

QUESTIONED COST

A cost the OIG has questioned because of an alleged violation of law, regulations, contract, grant, cooperative agreement, or document governing the expenditure of funds; such cost is not supported by adequate documentation; or the expenditure of funds for the intended purpose is unnecessary or unreasonable.

for ensuring that regulations that are implemented are necessary. There may be situations where program and grant changes may have to be made.

Below are summaries of seven of the audits.

- NSF awarded a \$223,200 grant to a Missouri firm for research supporting the development of new microelectronic and optoelectronic products. We questioned \$40,884. The questioned costs resulted from overstated expenditures that caused the firm to draw funds that exceeded its needs. In addition, we found that the grantee did not have adequate procedures to minimize the amount of time between the transfer of funds from NSF and the disbursement of those funds, and the grantee did not report interest earned on advance payments from NSF. After our review, the grantee adjusted requests for payments from NSF until the funds expended equaled the funds drawn down. DGC will resolve the other findings.
- NSF provided a \$230,206 grant to a nonprofit organization to support a process of growing crystal fibers. We questioned \$21,220. Claimed indirect costs exceeded allowable indirect costs, claimed costs exceeded recorded costs, and there was a grant charge that was not supported by an invoice. The organization disagreed with the questioned indirect costs because it believed that indirect cost rates should be averaged over the life of the

grant instead of calculated yearly. We are working with the grantee and DGC to arrive at an equitable solution on the indirect cost issue, and DGC will make a final decision during the next reporting period.

- We audited a \$202,123 grant and questioned \$6,592. There was insufficient documentation to support claimed direct costs, indirect costs claimed exceeded the amount allowed in the grant award, and the fee charged exceeded the grant amount. We also found that cash on hand exceeded immediate needs, cash advances were not deposited in interest-bearing accounts, expenses on the FCTR did not agree with account records, documentation was not sufficient or available to support claimed costs, supervisors did not review time sheets, and administrative and financial operations were not adequately segregated. We recommended that the grantee maintain adequate documentation of expenditures, require that supervisors sign timesheets, review all purchase orders and salary changes, prepare FCTRs using actual expenditures, maintain advances in an interest-bearing account, and remit interest to NSF. The grantee has agreed to make some of the recommended changes.
- NSF awarded two grants, totaling \$499,930, to a firm for research in metalorganic chemical alloys. The audit questioned \$5,912 and requested payment of \$1,793 of interest earned but not

remitted to the government. The questioned costs resulted from costs claimed that were not in the grant budget and the grantee not limiting cash advances to its current needs. We also identified changes needed in the maintenance and approval of timesheets and any subsequent changes in the payroll records. The firm has provided information relating to the findings and has indicated its intent to modify some of its procedures to address the findings.

FINAL ACTION

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

- We reviewed two grants, totaling \$450,913, to a company to support research in coalescence. We questioned \$3,521. Questioned costs resulted from claimed labor costs that were different than the hours recorded, travel expenses that lacked supporting documentation, and indirect costs claimed that were applicable to the labor costs and travel expenses. Finally, we found that the actual indirect cost rates exceeded the maximum provisional rate for one grant

and the predetermined indirect cost rate for the other grant. This resulted in the grantee accepting less than full reimbursement for work performed under the grants. We recommended that the grantee demonstrate how the research funds were, or will be, used in Phase III of the project. The company is reconciling its ledgers and is reviewing computerized accounting packages that will incorporate labor hours and costs.

- NSF awarded a \$249,425 grant to a for-profit corporation to support the development of a sensor system. We questioned \$3,069. The questioned costs resulted from overhead expenses being claimed at a rate higher than the maximum provisional rate set forth in the grant award, general and administrative expenses being claimed at a rate higher than the actual rate, and travel costs claimed in violation of the federal travel regulations. We recommended that claimed costs be limited to the FY 1991 rates and travel costs be limited to the amount set forth in the federal travel regulations. Resolution of questioned costs resulted in a disallowance of \$3,069.
- NSF awarded a \$250,352 grant to a California firm to sponsor research on a long-range holographic instrument for motion analysis of large surfaces. We questioned \$2,740. Questioned costs resulted from labor charges that we believe should have been charged to a previous NSF grant and unauthorized

travel costs that were incurred. We also found, as is the case in most of the small businesses, that the staff was too small to ensure that there was a proper separation of duties. Although we did not make any formal recommendations, we believe this firm should determine how best to address its internal control deficiencies.

Audits of Small Business Innovation Research Grantees Find No Major Deficiencies

In previous semiannual reports, we have reported only on reviews that resulted in adverse findings. We believe that we should also commend those grantees that have successfully complied with federal guidelines and the awards' requirements. These firms' performance and compliance with the guidelines and requirements demonstrate that it is possible for small companies to comply with federal grant requirements. Our reviews of three SBIR grantees resulted in the following positive findings.

- NSF awarded three Phase II grants totaling \$736,564 to a California company to support research on high-energy electron beams and devices used in that area of scientific research. One of the grants audited was awarded just before the cut-off date of our review and had no expenditures. The two remaining grants were awarded in 1991 and were active during our

audit. For the items tested, there were no questioned costs, internal controls were in place and effective, and the company was complying with applicable laws and regulations. The commitment for third-party funding for Phase III was still in effect, and the indirect cost rates were in line with award and actual rates.

- NSF awarded a Phase II grant totaling \$259,661 to a Massachusetts corporation to support materials research. The corporation had complied with the laws and regulations applicable to the grant, internal controls were in place and effective, and the statement of costs claimed fairly presented the financial results of operations.
- NSF awarded a \$249,851 Phase II grant to a corporation to support the study of improved aluminum reduction technology. We found that internal controls were in place and were effectively operating. We questioned a \$420 overcharge that resulted from a clerical error. The grantee agreed with the findings and has taken steps to address these minor deficiencies.

Office of Management and Budget Circular A-133 Audits

Background. Over the last 20 years, the oversight of nonprofit and educational institutions has been evolving. Until 1976, the government conducted audits that concentrated on reviews of individual awards. As a result, grantees that received funding from more than one agency were audited by each funding agency every year, with audits often overlapping. In 1976, OMB attempted to address the issues of separate audits and differing administrative requirements when it issued Circular A-110, *Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations*.

Circular A-110 contained the requirement that institutions receiving grants have their own external auditors or an independent audit organization conduct annual audits of the grants. The audit requirement under OMB Circular A-110 was one of the first attempts to alleviate the problem of overlapping audits by federal auditors. However, the guidance for audits in the Circular was not definitive, and there were no sanctions for not complying with the Circular. As implementation

of the Circular progressed, it became clear that NSF award recipients were not complying with the provisions in Circular A-110 and additional guidance was needed in the area of single audits.

The Single Audit Act of 1984, Public Law 98-502, was passed to establish uniform requirements for the audit of state and local government programs that receive federal financial assistance and to eliminate overlapping and duplicative federal audits of these programs. The Act was an extension of the concepts that had prompted issuance of Circular A-110, but it was written specifically for state and local government activities. The Single Audit Act and its implementing guidelines were more precise than Circular A-110 in their definitions, requirements, and guidance to the community served. The Act was considered a success because it contained better, more detailed guidance. Based on the Act's success, in 1990, OMB issued Circular A-133, which was intended to address the deficiencies in OMB Circular A-110 with guidance similar to that in the Single Audit Act. The guidance in Circular A-133 was to pertain to nonprofit organizations that were not covered by the Single Audit Act's implementing guidelines.

Requirements in Circular A-133. OMB Circular A-133 requires that nonprofit organizations have audits conducted by an independent audit organization, audits cover federal assistance, and audits be submitted for acceptance to the federal agency that has cognizant or oversight responsibility. The federal agency that provides most of the grant funding for a nonprofit organization is usually given oversight responsibility of that organization. OIG is responsible for approximately 450 nonprofit organizations. Circular A-133 also states that if audits are not conducted as required, severe penalties may be imposed on the recipient. These penalties include nonpayment of award costs and suspension of federal awards.

In our review of grantees' compliance with audit requirements, we found poor compliance with the audit requirements in OMB Circular A-110. In 1990, when the revised audit requirements were implemented through issuance of OMB Circular A-133, we placed renewed emphasis on compliance with the requirement for single audits of nonprofit institutions that receive federal assistance. Initially, grantees did not comply with this newly defined audit requirement. However, as time passed and our communication with the NSF award recipients increased, we began receiving more audit reports for review and acceptance. In FY 1991,

we received 12 reports; in FY 1992, we received 52 reports; and in the first half of FY 1993, we have received and processed 43 reports.

The federal audit and management communities have been concerned about the quality, usefulness, and completeness of the audit reports that were (1) prepared by auditors hired by the institutions being reviewed, (2) conducted using the "systems review approach" instead of the grant-by-grant audits, and (3) conducted by individuals and firms without the federal perspective on recommendations and questioned costs. To address these concerns, we analyzed the 43 reports received during this reporting period. The results of that analysis, initial conclusions, and planned additional actions are presented below.

- 27 of the 43 award recipients that had submitted audit reports were previously audited by certified public accountants (CPAs) under contract with NSF or by the OIG staff;
- 11 reports had questioned costs totaling \$188,881;
- 28 reports with questioned costs and/or procedural findings, identified 20 award recipients that were previously audited under the auspices of OIG;

- 3 reports were program specific (audits of individual grants) rather than system-wide audits. This type of review is allowed when only one agency has funding or the oversight agency approves such an audit before it is conducted; and
- 1 report was considered nonresponsive to Circular A-133 audit requirements.

It appears that (1) after OIG audits a grantee, it is often easier for other auditors to use the OIG audit report as a guide to perform subsequent audits and produce well developed findings and (2) the thoroughness of audit coverage varies among CPAs conducting the audits. These are our assessments based on desk reviews of the reports. We believe more on-site quality control reviews are needed to determine whether audits are being conducted in accordance with OMB Circular A-133 requirements. We plan to continue visiting auditors and award recipients to work with them to improve the quality of the audit work being conducted under OMB Circular A-133.

OTHER AUDIT ACTIVITIES

National Science Board Members' Bank Account Reviewed

NSF's Director requested that we review the management and use of the National Science Board (NSB) members' bank account. NSB members contribute to this private account, which is used to purchase members' meals at NSB and executive committee meetings and at NSB's annual awards dinner. This account does not contain funds provided by Congress (appropriated funds). Even so, improprieties or public perception that improprieties exist in the management of NSB activities is not acceptable. We reviewed the account to (1) determine the appropriateness of the existence and uses of the account, (2) find the causes of repeated shortages in the account, and (3) recommend reforms in the management of the account and associated activities to prevent future problems. We noted that annual reviews of the account had not been conducted, as required by NSB's procedural policies; records supporting the bank account were not summarized into timely reports that would allow the NSB's office to plan, budget, coordinate, and evaluate NSB activities; and the procedures requiring adequate approvals on documentation were not always followed.

In addition to the systemic findings presented above, we found that the cost of meals and refreshments purchased for official NSB functions at locations other than NSF's headquarters exceeded the reimbursements from attending NSB members. We also found that the costs of the annual awards dinner were not covered by receipts from NSB members or paying attendees. In both of these cases, appropriated funds were used to cover the shortfall in the receipts. Although it has been accepted practice to use appropriated funds to make up the difference between funds received and the actual costs of award dinners, we do not believe that appropriated funds should be used without Congress' specific authorization.

To ensure that there are no future shortfalls in funding, we recommended that (1) NSB's Executive Officer, ensure that future purchase orders for meals and refreshments at NSB meetings away from NSF headquarters not exceed the expected amount to be recovered from the attendees and official representation funds and (2) NSF's Director seek specific statutory authority or approval from the Comptroller General to fund NSB's annual awards dinner from appropriated funds or refrain from the practice of using these types of funds for the dinners. We also recommended that the responsibility for the management of the funds be

transferred to the Division of Financial Management, and the NSB members' account be made a subaccount of the NSF Trust Fund.

The Director and NSB's Chairman concurred with the findings and agreed to implement the recommendations.

NSF Participation in a Computer Systems Integrity Project

We are representing NSF and the Executive Council on Integrity and Efficiency in Task 4 of the President's Council on Integrity and Efficiency (PCIE) Computer Systems Integrity project. Task 4 will be evaluating the activities that are required to keep application software operational and responsive after it is placed into production. Application software includes all computer programs that are developed so that NSF employees can use computers to perform tasks that they would otherwise have to perform manually (for example, using NSF's financial management system to maintain NSF's accounting records instead of keeping handwritten logs). In September 1986, the PCIE Computer Committee (now the Technology Committee) initiated the Computer Systems Integrity project. The overall project objectives were to assess the integrity of federal computer systems and to develop recommendations for government-wide improvements in standards,

procedures, documentation, and operations affecting computer systems integrity.

To date, Tasks 1 through 3 have been successfully completed and have resulted in the issuance of individual audit reports to each participating OIG and consolidated PCIE reports summarizing the overall results of each task that addressed government-wide issues. The maintenance of application software was selected as the topic of Task 4 because a significant percentage of information and resource management (IRM) funds are expended in this area. In addition, recent PCIE, Executive Council on Integrity and Efficiency, and General Accounting Office (GAO) audits have indicated significant IRM management deficiencies relating to software maintenance. The annual software maintenance for the government cost over \$1 billion and, for NSF, cost \$2.5 million.

The review of software maintenance will be conducted as two separate Tasks (4A and 4B). Task 4A will concentrate on the management of the software maintenance process (e.g., policies and procedures, contract management, etc.). Task 4B will involve a detailed technical analysis of software maintenance techniques and controls for particular information systems. The results of Task 4A will be used to develop Task 4B's specific objectives.

The overall objectives of Task 4A were to evaluate the (1) agency's software maintenance policies and procedures; (2) agency's management of the software life cycle; (3) process by which the agency manages contractors performing software maintenance work; (4) quality and quantity of software maintenance cost information; and (5) treatment of software maintenance as an internal control issue. Each Task 4A participant is to develop an agency IRM profile, gather specific information regarding agency management of the software maintenance process, and analyze selected agency systems for application maintenance risk based on measurable system characteristics.

We have finished the agency IRM profile, and we have written a report based on information gathered on NSF's management of the software maintenance process. We have completed the analysis of selected agency systems using the risk model provided by the Environmental Protection Agency and are finalizing our Task 4A report, which will complete our Task 4A responsibilities. We will begin Task 4B after the Environmental Protection Agency's OIG completes its analysis of all of the participating agencies' Task 4A reports and finalizes the Task 4B audit guide.

Travel and Conference Grants

NSF funds travel and conference expenses as part of its support of research and development activities, including the dissemination and sharing of research information. Recently, NSF provided grants to scientific associations and institutions to support conferences and travel. Under these grants, an institution receives, screens, and accepts applications for travel to specific conferences. The grantees are also the focal point for the administrative support and organization of the conferences supported.

Over the last 4 years, we have reviewed travel and conference grants that were provided to associations, companies, and institutions as part of our audits of individual grantees. In reviews of the reports resulting from our audits, we noted that there were similarities in the findings. Based on this, we authorized one of the CPAs under contract with the OIG to review, identify, and summarize the deficiencies in audit reports issued over the last 3 years and to analyze the work papers of those audits to identify the reasons for common findings. The CPA's review covered audits of 102 grants at 21 separate institutions.

The review found the following deficiencies that were common to travel funded by NSF travel and conference grants: (1) lack of adequate

accounting and record maintenance for NSF grants and (2) absence of or poor documentation of travel costs. Informal delegation (subcontracting) of daily program operations to certain individuals or organizations often contributed to these deficiencies.

Even though the entities that received the travel and conference grants had accounting and financial systems in place, we found that most grantees completely bypassed their accounting systems and used manila folders to collect information about NSF travel costs. These folders contained lists of the people who were given money for travel. However, complete supporting documentation, such as ticket stubs, travel vouchers, and verification of attendance at conferences, was not always available. As a result, there was no clear audit trail of what expenses were actually incurred for each grant award.

We also observed that many of the grantees had informally subcontracted their financial and programmatic operations to other individuals or organizations. In many of these cases, the person required to perform all of the daily activities was the principal investigator (PI).

This informal subcontracting of activities and responsibilities was done without written agreements, guidelines, or instructions.

Since the grantee did not employ the PI and there were no written agreements, when the PI failed to maintain records and documentation to support expenditures, the grantee had little to rely on except the belief that the purposes of the grant had been achieved. We recommended that NSF:

- require that the grantee disclose its intention to subcontract any of the activities or responsibilities under the grant, whether formal or informal;
- ensure that when a subcontract is approved as part of the grant, that subcontract is in writing;
- reiterate to each grantee that the prime grantee is responsible for ensuring that the grant's objectives are accomplished and is accountable for supporting individual expenditures;
- work with the grantee to develop a method of documenting the attendance and participation at conferences of funded individuals; and
- advise grantees that because of prior findings in the supported section, they are likely to have travel grants audited.

We will be working with DGC to assist in addressing these findings and recommendations.

ADDITIONAL AUDIT ACTIVITIES

FFRDC Cognizance. In our previous semiannual report, we discussed two reviews that we conducted as a result of concerns raised by the Senate Subcommittee on Oversight of Government Management and OMB's Office of Federal Procurement Policy. Specifically, the subcommittee and OMB were concerned about the oversight of Federally Funded Research and Development Centers (FFRDCs). NSF sponsors five FFRDCs and NSF's OIG has audit cognizance for three of these centers: the National Center for Atmospheric Research (NCAR), the National Optical Astronomy Observatory, and the National Radio Astronomy Observatory.

During this reporting period, we worked with NSF to calculate an indirect cost rate for NCAR, and we conducted three reviews for the National Aeronautics and Space Administration (NASA), which was contracting with NCAR. The first was a financial and compliance audit of a NASA contract, and the other two were preaward reviews to verify whether the information contained in the proposal was accurate. We did not request reimbursement from NASA for these three audits because in the past, NASA has assisted in our reviews at grantees for which it has cognizance. We believed that it would be more equitable for the grantee and cost-effective for the government if we performed the review since we had a working knowledge of NCAR's recordkeeping system.

We are concerned that we will have to begin charging other federal agencies for audits that we perform at their request at FFRDC's for which we have cognizance. With the conversion of federal funding from military to

domestic research, FFRDC's will be doing more work for federal agencies and we will be called upon to perform more audits of FFRDC activities. We will be tracking the time required to provide assistance to other agencies to ensure that we are not expending resources that are needed to review NSF activities and that we are performing the duties that are required to fulfill our mission.

Lobbying Restrictions. We reviewed the system that NSF uses to receive, review, and report on the implementation of section 319 of Public Law 101-121 (31 USC 1352), *Limitation of Use of Appropriated Funds to Influence Certain Federal Contracting and Financial Transactions*, for the fiscal year ended September 30, 1992. This review is required each year, and its results are submitted to Congress when NSF's budget is presented for action. Public Law 101-121 prohibits recipients of federal contracts, grants, loans, or cooperative agreements from using appropriated funds for lobbying in connection with the contract, grant, loan, or cooperative agreement.

NSF had submitted its required semiannual reports to Congress and there was a positive improvement in the recordkeeping and in the system employed to ensure that NSF received Certificates of Lobbying Restrictions before the issuance of a grant, contract, or cooperative agreement. The recommendations in last year's report on lobbying restrictions had been addressed, and we have not made any recommendations for corrective action as a result of the current review.

INVESTIGATIONS

The Investigations unit is responsible for investigating violations of criminal statutes as well as 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 prosecutors 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 violation 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.

The following section describes cases involving the diversion of funds that we investigated during the reporting period.

Company Fraudulently Obtains Double Funding on an SBIR Award

The SBIR program was designed to stimulate technological innovation in the private sector while strengthening the role of small businesses in meeting federal research and development needs. Small businesses that apply for SBIR awards are required to state in their proposals whether they have submitted, or intend to submit,

Table 1

Active Cases From Prior Reporting Periods	18
New Allegations	20
Total Cases	38
Cases Closed After Preliminary Assessment	0
Cases Closed After Inquiry/Investigation	16
Total Cases Closed	16
ACTIVE CASES	22

essentially equivalent proposals to other federal agencies. NSF's program solicitation states that NSF will not fund research that has been, or will be, funded by another agency.

A joint investigation conducted by NSF and a special agent from another Office of Inspector General revealed that the owner of a small business submitted identical proposals to NSF and a second federal agency. Neither proposal disclosed that a duplicate proposal had been submitted to the other agency, and each resulted in an award of approximately \$50,000. While work was being conducted under each award, the small business owner submitted additional documents to NSF and the other federal agency that concealed the fact that another agency had funded an identical proposal. By submitting these proposals and documents to NSF and the other federal agency without disclosing the existence of the other proposal or award to either agency, the owner made more than 10 false statements to the government. False statements are criminal violations of 18 USC § 1001, *Fraud and False Statements/ Statements or Entries Generally*, and a civil penalty of up to \$20,000 may be imposed for each false statement made under the False Claims Act (31 USC §3729).

The investigation also revealed that the government paid twice as much for what it actually received. The documentation that the small business owner provided did not support expenditures for even one of the SBIR awards. Under the False Claims Act, the government may seek recovery of three times the amount of actual loss in addition to the civil penalties noted above. Based on our investigation, we concluded that the total loss to the government exceeded \$70,000.

We also found that the small business owner submitted duplicate proposals to NSF and a third federal agency without notifying either agency that a duplicate proposal had been submitted.

We referred this matter to the appropriate U.S. Attorney with recommendations that (1) civil proceedings be initiated to recover all grant funds and obtain appropriate monetary penalties and (2) criminal charges be brought against the small business owner.

University Misused NSF Funds to Write Grant Proposals for Additional Funding

NSF's Alliances for Minority Participation (AMP) program was initiated in 1990 to increase participation by minorities in science and engineering. Many organizations competed heavily to receive grant funding under this program, and in November 1991, NSF awarded a state university a cooperative agreement to fund an AMP project. That project would increase the number of minorities receiving Bachelor of Science degrees in science and engineering. NSF provided funds for only the first year of the 5-year, \$5 million cooperative agreement. At the beginning of each year of the agreement, NSF will decide whether to continue funding the AMP project.

In October 1992, we received allegations that the university misused the funds that NSF provided for the AMP project. The funds were allegedly used to pay staff members to write grant proposals, which were then submitted to NSF to request additional funding. Our review of the allegations found no criminal wrongdoing. However, we did find that the university inappropriately charged salary costs to the AMP project for staff time used to prepare grant proposals, and the university submitted some of the grant proposals to request additional funding from NSF.

In addition, we questioned the four staff members' salaries (\$100,974) because payroll records were unable to identify the portion of salaries spent on preparation of proposals. The PI and the project administrator stated that NSF officials encouraged them to write proposals to NSF and private sources to leverage NSF funding of the cooperative agreement. We also found that NSF encouraged these university officials to submit proposals to NSF and other private sources to obtain additional funding. However, NSF did not advise the university officials to charge proposal preparation costs directly to the AMP project. Contrary to the university officials' views, we believe it would be wasteful and inappropriate for NSF to award a grant or cooperative agreement to pay the grantee to develop and submit new requests for funding from NSF.

We recommended that (1) the university quantify the amount of funds spent on writing grant proposals to NSF and credit that amount to the cooperative agreement, (2) the university no longer charge proposal preparation costs directly to the cooperative agreement, and (3) NSF issue additional funding to the AMP project contingent upon appropriate resolution of the issues identified in our review.

**FOLLOW-UP ON
DIVERSION CASES
REPORTED IN
PREVIOUS
SEMIANNUAL
REPORTS**

**Diversion of NSF and a
Nonprofit Society Grant
Funds by a Principal
Investigator**

In Semiannual Report No. 7 (page 17), we reported that we had investigated allegations of fraud against a PI on grants totaling \$280,000 from NSF and a nonprofit society. We determined that the PI submitted misleading progress reports to NSF to receive second- and third-year funding for the NSF grant and to continue to receive grant funds from the nonprofit society. We also found that the PI expended \$108,678 of NSF's grant funds and \$54,763 of the nonprofit society's grant funds, totaling \$163,441, for costs unrelated to either grant. As a result of our findings, the university asked the PI to repay all funds expended under both grants. In June 1992, the PI repaid over \$232,000 to the university. The university then returned all of the grant funds awarded by NSF and the nonprofit society.

We referred the results of our investigation to the appropriate U.S. Attorney for prosecution. On November 30, 1992, the U.S. Attorney filed a plea agreement and information with the U.S. District Court charging that the PI had violated 18 USC § 666 and 1341. Under federal sentencing guidelines, the PI faces a minimum penalty of 12 months imprisonment and possible fines. The U.S. Attorney has submitted a brief to the District Court asserting

period. The PI is scheduled to be sentenced in April 1993.

**Misuse of NSF
Advanced Funds on an
Educational Publication
Grant**

In Semiannual Report No. 7 (page 18), we reported that a combined audit and investigation found that a small business had used advances from an NSF grant for the production of an educational publication to pay its general operating expenses. While we

found that the company did initially use NSF funds for purposes outside the grant's scope, we also found that the company routinely reimbursed the NSF grant as soon as it generated sufficient income from its other activities and that it did produce the educational publication. We found no evidence that the company had intended to defraud NSF, but we did question certain costs. Based on our recommendation, NSF

terminated the grant, thereby retaining \$49,369 that would have been provided to the company under the grant.

Table 2

Referrals for Criminal Prosecution Pending:	
From Previous Reporting Period	1
New Referrals	3
Prosecutorial Declinations	2
Indictments From Previous Period	0
New Indictments	0
Criminal Convictions/Pleas	1
Referrals Pending	1
INVESTIGATIVE RECOVERIES	\$49,369
ADMINISTRATIVE ACTIONS	44

that the sentencing guidelines require that the PI be given more than the minimum sentence because the PI abused a position of trust by submitting 180 fraudulent travel vouchers, 33 fraudulent payroll vouchers, and 136 invoices for purchases for his personal benefit over a 4-year

Other Investigative Activities

Abuse of Car Pool System: NSF employees who commute to work by car pool are entitled to subsidized parking spaces. NSF subsidizes half of the monthly parking cost for each of the 162 car pools that have parking permits. The cost of these subsidies is \$150,000 per year.

In 1990, in response to allegations of abuse, we audited NSF's system for issuing car pool parking permits. Our audit found many errors in the system, and we made several recommendations to improve the program's efficiency. NSF's Division of Administrative Services (DAS), which administers the parking program, concurred with our recommendations and sent notices to all staff members reminding them of the rules that apply to parking permits. Despite this change, we received subsequent allegations of abuse. In response, we reviewed the applications of seven of the car pools listed in the allegations and identified false information. On this basis, we expanded our investigation by reviewing the applications of 70 car pools.

Of the 70 applications we reviewed, 37 contained accurate information. On the remaining 33 applications, we found that 12 contained material false statements

demonstrating intentional or reckless disregard for the truth, and 21 contained minor misrepresentations. We counseled car pool members who had submitted applications with minor misrepresentations, and we recommended appropriate administrative actions against individuals who had submitted applications with material false information.

We also recommended that DAS (1) clarify its application instructions and the system used to award points, (2) emphasize driver responsibility for the accuracy of the information submitted, (3) require that all car pool applicants sign an acknowledgement of understanding of car pool regulations and application rules, and (4) notify employees that changes in car pool memberships must be reported to DAS as they occur and that employees may not sign application forms for one another.

NSF implemented our systemic recommendations, and NSF management recommended administrative actions against 43 employees.

Credit Card Thefts: We recently investigated the theft of credit cards from NSF. These credit cards were issued to designated NSF employees, such as administrative officers, for business-related purchases. In each case, several unauthorized purchases, such as gasoline and department store items, were made with cards that had

not been received by the employees to whom the cards were issued and mailed. Our investigation into the theft of these cards is ongoing. During the investigation, however, we determined that many types of unauthorized purchases can be prevented by lockout codes, which are programmed onto the credit cards. Based on our recommendation, NSF has implemented this safeguard to prevent further financial losses.

Personnel Information Used in Credit Card Application:

We investigated an allegation that information obtained from personnel records of an NSF employee was used in a false credit card application. The false application was discovered when the credit card company contacted the NSF employee to verify personal information on the application. The credit card company did not process the application, but the NSF employee notified us of the possible breach of security. Our investigation identified the author of the false credit card application to be an employee under contract with NSF. The subject admitted that he had completed the false application using information about the NSF employee that he found in the trash. Upon our recommendation, the contract employee was terminated, and NSF reviewed and tightened procedures for proper and immediate disposal of sensitive documents.

False Statements on Race and Ethnicity: NSF promotes a variety of programs to foster the participation of under-represented racial and ethnic groups in science and engineering. To make informed funding decisions, NSF relies on accurate declarations of race and ethnic group membership in grant proposals and in minority fellowship applications. These data also influence NSF's assessment of the effectiveness of its programs targeted for members of groups under-represented in science and engineering. During the last 6 months, OIG processed three cases that alleged that the subjects had made false statements regarding race or ethnic group identification. In each case, we contacted the subject and obtained necessary clarification.

One case alleged that the subject stated that he was a Native American on the Information about Principal Investigators/Project Leaders Form submitted with the proposal even though he was a Caucasian. Two cases alleged that misstatements were made on successful NSF minority graduate student fellowship applications: one stated that the subject made a false claim of Hispanic background, and the second stated that the subject falsely claimed to be African-American.

Our inquiries into these allegations found no misrepresentation; however, we are committed to maintaining the integrity of information upon which NSF must rely in carrying out its mission. Although we recognize the delicate nature of inquiries into statements of race or ethnicity, we intend to continue to investigate such matters so that appropriate action is taken against individuals who provide false information.

OIG Electronic Mail "Hot Line": In response to the President's request that citizens report instances of fraud, waste, and abuse, we have created an electronic mail address for the submission of allegations to OIG. OIG's electronic mail address is "oig@nsf.gov." This will facilitate the submission of allegations by NSF employees through the local NSF network, as well as NSF awardees and other members of the public through national networks, such as Internet and Bitnet.

OVERSIGHT

The Office of Oversight focuses on the science-engineering-education-related aspects of NSF operations and programs. The Office conducts and supervises compliance, operations, and performance audits as well as investigations of NSF's programs and operations. The Office handles all allegations of nonfinancial misconduct in science, engineering, and education and is continuing studies on specific issues related to misconduct. The Office oversees the operations and technical management of approximately 200 NSF programs, undertakes inspections, and performs special studies.

MISCONDUCT IN SCIENCE AND ENGINEERING

The Office of Oversight is responsible for processing all allegations of misconduct in science and engineering related to NSF proposals and awards. This Office is also responsible for recommending policies that address the problem of misconduct and foster ethical scientific practices. As part of a continuing effort to inform the community about misconduct policy and procedures, we have prepared the following discussion of investigations resulting from allegations of misconduct.

What OIG Looks For In University Investigation Reports

Under NSF's regulation on misconduct in science and engineering, we usually send an allegation of misconduct to the university that employs the accused individual for investigation. At the end of its investigation, the university sends us a report for evaluation. As a result of our evaluation, we may send the university questions about its investigation, may request further information, or may perform an investigation of our own. When we have a satisfactory investigation, we decide whether to recommend that NSF make a finding of misconduct and impose a sanction. We evaluate the university's investigation solely in terms of whether it is

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.

accurate and complete enough for us to use in making our recommendation. Below is a discussion of some of the recurring problems we have noticed in our evaluations of university investigation reports.

Expert Conflicts of Interest.

We have noted that some individuals who serve on university investigation panels have possible conflicts of interest. There are a variety of personal and professional relationships between panel members and the individuals involved in the case that may compromise the credibility of the university's investigation. The university should resolve possible conflicts of interest before the panel commits a significant amount of effort to the investigation. To help preclude such problems, we now ask for a curriculum vitae for every panel member at the beginning of the investigation. Individuals who testify as experts during the investigation may also have conflicts that can compromise the investigation. On the other hand, the investigating panel will obviously have to interview persons who are directly involved in the case. Their involvement will have to be considered in evaluating their testimony.

Failure to Use All Relevant Evidence and Witnesses.

We have also found that some investigations are incomplete. An investigating panel has to request and examine all relevant documents and interview all relevant

witnesses. However, in our experience, they often do less than this. For example, they may fail to interview relevant witnesses if such witnesses are on another campus and the investigators prefer not to make the existence of the case known outside their own institution. While we appreciate the need to keep misconduct cases confidential, once an investigation is begun, it has to be performed thoroughly. Failure to interview witnesses or request documents may also be due to an excessive willingness to believe the accused individual. That person's account of what happened is often taken at face value and written into the investigation report without an adequate attempt to find evidence that would support or refute it. Panels investigating misconduct cases have to take seriously the possibility that a witness is not telling the truth. An investigation is also incomplete if it does not consider relevant allegations that were not made at the beginning of the investigation but that surfaced during the investigation.

Poor Analyses of Evidence.

Some investigation reports do not provide cogent analyses that lead to the panel's conclusions and recommendations. For example, poor arguments often appear in discussions of the accused party's intent. Many in the scientific community feel that intent should be considered in misconduct cases. Intent is frequently introduced into the

investigation of individual cases, and it is also prominent in policy discussions about the definition of misconduct (see the National Academy of Sciences' Committee on Science, Engineering, and Public Policy Panel Report *Responsible Science: Ensuring the Integrity of the Research Process*, pages 27-28, and the new definition under consideration by the Public Health Service).

University investigating panels often feel that they cannot make a finding of misconduct in science without proving intent. However, the attempt to prove intent places a considerable burden on such panels. The persons serving on these panels typically have not dealt with the subject of intent previously, and they receive little guidance. It is true that inexperienced jurors in court trials frequently assess intent, but they benefit from the instructions of the judge and the arguments of the attorneys for the two sides. University panels usually do not have this assistance. They often do not distinguish between different intentions or between different levels of intent, and they often are not clear about what would constitute evidence of the presence or absence of intent.

University panels sometimes neglect to consider whether reckless actions, in addition to actions done deliberately, can be misconduct in science.

Subjects of investigations sometimes argue that their conduct was not deliberate; they assert that they did not intend to mislead anyone, including NSF. However, in one case, NSF found that an individual engaged in misconduct when his behavior was reckless, even if there was no proof of "intent to deceive" or of "deliberate" actions. If a university investigation considers intent and concludes that the subject's behavior was not deliberate, it should also address whether that behavior was grossly negligent or reckless.

Standard of Proof. The problem of assessing intent may be compounded by the question of which standard of proof to use. In NSF's regulation on misconduct in science and engineering, the specified standard is "a preponderance of the relevant evidence." Many universities use this standard, but some use more stringent standards, such as "clear and convincing evidence" or "beyond a reasonable doubt." Moreover, some university investigation reports do not clearly state which standard they are using. If a university panel employs a stringent standard of proof and believes in addition that it must prove intent according to that standard, it will often find that it cannot reach a conclusion about intent and therefore cannot reach a conclusion about misconduct in science. In this way, cases that are clearly misconduct in science

in terms of the overt evidence may lead to findings of no misconduct by the university because of the unresolved question of intent.

If a university panel uses a standard of evidence that is different from NSF's, or does not state its standard, we may ask it to reevaluate the case in terms of NSF's standard to help NSF's resolution of the case. This may also happen if the panel has used a definition of misconduct in science that is significantly different from NSF's definition.

OIG's General Policy.

Universities should understand that when we send them an allegation, we are not accusing the individual of misconduct. At that stage, we take no position concerning the truth or falsity of the allegation. We are passing on an allegation we have received that we believe the institution will want to resolve. We give the institution the opportunity to conduct the investigation, but we will conduct the investigation if the institution prefers that we do so. Most universities try to resolve the case on its merits. However, a few investigation reports suggest that the university considers the allegation received from NSF to be an unwelcome intrusion. The university may deal with this intrusion by imposing a sanction it believes NSF wants, when it has actually found no misconduct, or it may try to defend the accused party against what it sees as an

accusation by NSF. These actions reflect a misunderstanding of the roles of NSF and the university in misconduct cases.

Principal Investigator At Eastern University Is The Subject Of Multiple Allegations

We received seven allegations from a postdoctoral researcher against an NSF-supported faculty member at a southeastern university. The allegations arose during the revision of a coauthored manuscript, which was to be submitted to a scientific journal for publication. Four of these allegations are highlighted here to provide examples of the various methods we use to resolve allegations of misconduct in science.

Falsification of Data in an Abstract by the Subject. Our initial inquiry determined that a full evaluation of this allegation required a review of relevant laboratory notebooks. The institution requested that it be allowed to conduct the inquiry and any possible investigation into the allegation. The institution's inquiry committee conducted interviews and reviewed two relevant laboratory notebooks and the subject's relevant publications. The committee concluded that the abstract in question was not clearly written, and, if it was read in isolation, was subject to misinterpretation. However,

based on a broader understanding developed through interviews, examination of the laboratory notebooks, and reviews of the related publications, the committee concluded that there was no substance to the allegation. We reviewed the committee's inquiry report and concluded that its inquiry and finding of no misconduct could be adopted in lieu of any inquiry or further action by OIG.

Subject Failed to Submit Revised, Coauthored Manuscript for Publication.

From materials supplied by the complainant and the subject, we determined that three issues were relevant to this allegation: a scientific dispute over the interpretation of the complainant's original data, the absence of complete laboratory records to document the complainant's original experiments, and the complainant's failure to create the new data necessary to revise and resubmit the rejected manuscript.

The complainant acknowledged that she relied on other laboratory personnel to record mainly her successful experiments and associated data. The subject provided documentation to show that some of the laboratory records needed to respond to the reviewers' comments were missing from the laboratory notebooks. After the manuscript was rejected, the subject decided to repeat the entire set of experiments because of his concern over the relevant issues outlined

above. The subject's results conflicted with the complainant's earlier results. In our view, it is doubtful that the costly and time-consuming repetition of experiments would be undertaken only to suppress the complainant's data. We determined that this was a dispute between the subject and the complainant on properly collecting, recording, and interpreting scientific data, not an allegation of misconduct in science. We believe that this situation also points out the importance of individual researchers maintaining meticulous and accurate records of experimental results in laboratory notebooks.

Misrepresentation of Data in the Subject's Abstracts. The complainant alleged that the subject had misrepresented data gathered from one experimental system as being collected from another. To assess this allegation fully, we included a confidential, scientific review of the relevant materials by an expert outside OIG. The outside expert found no evidence that the subject misrepresented his data. Using the expert's determination, as well as our own judgment, we concluded that this allegation lacked substance.

Subject Submitted a Proposal to NSF that was Based on Faulty and Unpublished Data. The complainant requested that we review the merit of a specific proposal from the subject because the complainant felt it was based on faulty and

unpublished data. We determined that this request was an extension of, and based upon, two other allegations that we found were without substance. In fact, the subject had prepared at least six abstracts and one paper related to the work described in his proposal. Further, determining the merit of an individual's research proposal is part of NSF's proposal evaluation process; it is completely separate from OIG's function. Similarly, the evaluation of misconduct allegations is not a function of NSF programs.

Our investigation of the other, minor allegations did not find any evidence of misconduct in science, and we closed this case. The analysis of the allegations in this case demonstrates the variety of techniques OIG can rely on when gathering and reviewing information pertinent to an allegation.

Science Staff Activities

A senior scientist in the Office of Oversight published a paper entitled, *The Definition of Misconduct in Science: A View From NSF*, in the January 29, 1993, issue of *Science*, which is one of the most widely read and important American science policy journals. The paper explained that NSF's definition is not a list of all of the kinds of misconduct that NSF will take action against. Rather, in speaking of "serious deviation from accepted practices" it expresses NSF's intent to enforce the standards that the scientific community holds for the responsible conduct of research and education. There is no list of all of these standards and therefore NSF has the flexible, open-ended phrase "serious deviation from accepted practices," which implicitly contains all these standards and allows for kinds of

misconduct in science that are not anticipated by any list. Reprints of this article are available through the Oversight Office.

We have published several papers and made presentations at several significant scientific meetings.

- Two articles written by the Oversight staff, *New Definitions of Misconduct: Priorities for the 1990's*, and *The Measurement of Misconduct*, appeared in the December 1992 issue of the journal *Knowledge: Creation, Diffusion, Utilization*.
- We also made presentations at the American Association for the Advancement of Science and American Association of Medical Colleges joint practicum, *Responding to Allegations of Research Misconduct* in December 1992 and at the national meeting of Sigma Xi, the Scientific Research Society, on Ethics, Values, and the Promise of Science in February 1993.

Table 3: Misconduct Case Activity

	FY 1992 Last Half	FY 1993 First Half
Active Cases From Prior Period	60	72
Received During Period	28	27
Closed Out During Period	16	18
In-Process at End of Period	72	81

INSPECTIONS AND EVALUATIONS

Inspections are on-site reviews conducted by OIG staff that assess organizations' compliance and effectiveness in three major areas: finance, administration, and achievement of science and engineering program goals in research and education.

Inspections supplement OIG's ongoing audit and investigative activities by broadening accountability beyond financial and administrative compliance requirements to assess the responsiveness of research and education activities to individual program goals.

Inspection reports provide agency managers with timely information monitoring programs. They highlight well-managed operations and help agency managers intervene quickly when problems are identified. They also promote an increased awareness by PIs and their sponsoring institutions of the importance of accountability in the management and the performance of NSF awards.

Inspection teams use a variety of study methods and are usually composed of two to four OIG staff members. The composition of any team depends on the expertise required to understand the research or activity to be inspected. Team members may include scientists and engineers, auditors, computer specialists, investigators, lawyers, and management or program analysts. If the expertise required is not represented by OIG staff, consultants from the private sector or other federal agencies may be used.

Although an inspection may use a variety of study methods, it uses evaluations most often because of their focus on performance and capacity building. As part of an inspection, an evaluation benefits from current field data available during a site visit.

Inspection Of A Biology Department At A State-Supported Southern University

We performed an inspection at the university's biology department to review performance and compliance under a total of nine NSF grants awarded to three PIs. The nine grants included basic research awards and funding for equipment made over an 8-year period.

We did not find any significant deficiencies in the financial administration of these awards. We did identify, and made suggestions to correct, weaknesses in the department's internal controls over requisitions and receiving reports.

The administrative portion of our inspection found that the institution has received fewer than five allegations of misconduct in science in the last 5 years. We concluded that the institution has the ability and is willing to devote the resources necessary to resolve these allegations adequately. We were concerned about the potential for future problems due to a widespread lack of awareness about the institution's misconduct policies and procedures and NSF's misconduct regulations.

In our view, except for designated misconduct officials' awareness of the procedures for filing and resolving allegations of misconduct in science on the part of administration officials, faculty, and students

was low. As a result, we expressed concern that allegations could be misdirected or mishandled and recommended that the university clarify its policies and procedures and heighten awareness of them throughout the institution.

The inspection team was also concerned because women and racial minorities in tenure or tenure-track positions were inadequately represented in the biology department. Approximately 40 percent of people in the United States that have Ph.Ds in biology are women. Yet, in the biology department, which contains 35 faculty positions, only 1 woman held a tenured professorship, only 1 woman was in a tenure-track position, and 2 women were in nontenure-track positions. No faculty minorities were represented. Approximately half of the biology graduate students were female, but there was only one minority graduate student.

Representatives of the institution's administration and the biology department described their programs for outreach to these underrepresented groups. They cited the university's geographical isolation, the demands of child care and two-career families, and the school's competitiveness as reasons for the institution's relative lack of success in recruitment. We recommended that the university review its recruitment programs for women and minorities to determine

whether these programs' effectiveness could be increased.

The scientific portion of our review raised concerns about the ownership of laboratory notebooks and other data sources documenting work funded by NSF. NSF's policy is clear: maintenance of these records is the responsibility of the sponsoring institution and, as a result, ownership vests not in the PI but in the university. The institution should have storage and retention policies that allow it to locate and produce notebooks in response to a request from the research community, or from an agency during a site visit, or as part of a misconduct inquiry or investigation. There should be no routine objection to PIs taking original data with them if they move to another institution. However, the university's presumed accommodation to continuing research should not undermine its storage and retention responsibilities.

We asked faculty and administrators about their understanding of notebook ownership. With one exception, administration officials said the institution owned the notebooks. Most faculty members that we interviewed told us that laboratory notebooks documenting their research belonged to them. Faculty members who ultimately conceded that the notebooks belonged to the university told us that while it might be the

legal requirement, the practice was inequitable.

Similarly, we found a great deal of variation among faculty members regarding the release of notebooks to graduate students and post-doctoral researchers. In some PIs' laboratories, the graduate students were permitted to take their notebooks, the only copies, when they left; in others they were not. Some PIs viewed theses and dissertations as the source for the primary data, and on that basis, released the notebooks to individual researchers. Even within individual PI's laboratories, the practice on the release of notebooks to graduate students and postdoctoral researchers varied.

We recommended that the university more clearly articulate its policies on ownership and retention of laboratory notebooks to faculty, students, and researchers at all levels. We also suggested that NSF staff clarify NSF's policy in their interactions with awardee organizations and individual researchers.

Special Study: An Evaluation Of NSFNET, NSF's National Computer Network Program

NSFNET, NSF's national computer network, provides the backbone of the National Research and Education Network program (NREN). This network is a state of the art information superhighway and is an important part of the President's initiative to promote technological development in the United States.

NSFNET is a computer network that interconnects the NSF supercomputer centers and regional, government, and international networks, thus enabling researchers, educators, and students worldwide to communicate with each other electronically. Congressman Rich Boucher, Chairman of the Subcommittee on Science, House Committee on Science, Space, and Technology, raised concerns involving NSFNET, which currently receives about \$10 million per year from NSF. Because of the importance of this program, we expanded the scope of our evaluation of the issues raised by Representative Boucher to encompass a general review of the NSFNET program.

We were generally impressed with the NSFNET program. Nonetheless, we made several recommendations to correct certain deficiencies and further

strengthen this important program, including that NSF:

- improve documentation of the decisionmaking process and maintenance of essential records,
- formally seek and respond to public comment involving NSFNET's Acceptable Use Policy (AUP) and evaluate the methods that are used to ensure that the AUP is enforceable, and
- formally coordinate with other government agencies to analyze potential advantages that could result from integrating NSFNET with other government networks.

Initial Solicitation, Award, and Amendments. We began with a review of the solicitation, evaluation of proposals, and selection of a provider for the NSFNET network backbone in 1987. Six offerors submitted proposals, and the winning proposal was significantly less expensive than the other technically qualified proposals. We concluded that NSF's choice of awardees was reasonable.

In 1989 and 1990, the awardee increased NSFNET's speed and expanded NSFNET to increase the number of interconnections between network points. We concluded that NSF's decision to expand NSFNET, which substantially increased the cost of the cooperative agreement, was not unreasonable because NSFNET was becoming congested at the slower speed.

We also concluded that the price for the expansion was reasonable.

Commercial Access. In September 1990, the awardee formed a nonprofit corporation to which it assigned its responsibility for management and operation of NSFNET. The nonprofit corporation then formed a for-profit subsidiary to market commercial access to the nonprofit corporation's network. Although NSFNET's AUP prohibits commercial traffic on NSFNET, NSF's program staff determined that the operations center, routers, and lines the nonprofit corporation used to provide NSFNET services were not subject to the AUP. NSF required that (1) the service provided under the NSFNET award not be diminished by the increased commercial traffic, and (2) after-tax profits earned by the for-profit subsidiary be placed in a pool to be used to build national and regional network infrastructure. We concluded that the establishment of the infrastructure pool was consistent with the requirement in NSF's general award conditions that income from NSF awards be used to further project objectives.

We also concluded that, because the NSFNET solicitation and the proposals neither anticipated nor prohibited commercial use, and because allowing commercial use would not have a detrimental effect on NSF or NSFNET's objectives, it was within NSF's discretion

to allow commercial traffic over the nonprofit corporation's network. In addition, because NSF has publicly stated that other commercial network providers may send commercial traffic over the network on the same terms accorded to the for-profit subsidiary, we concluded that the for-profit subsidiary was not accorded a competitive advantage over other commercial network providers.

However, we did conclude that NSF should have announced to the networking community NSF's decision to allow commercial use of the nonprofit corporation's network. By making a public announcement, NSF could have avoided a controversy, which we believe was generated primarily by (1) ignorance of the facts regarding the commercial access available to the network and (2) a mistaken perception that the agency was purposefully keeping its actions from the public.

Documentation and the Decisionmaking Process.

We were concerned by the NSFNET program staff's failure to document its decisionmaking process, as well as its failure to keep important correspondence and reports pertaining to NSFNET in the program files. Peer review of, and/or public comment on, important decisions ensure that the affected community's views are considered, and documented supervisory review ensures that no individuals act

beyond their authority within NSF. We recommended that NSF ensure that all significant NSFNET program decisions are adequately documented to reflect the level of NSF supervisory review and approval that occurred and that all relevant documents associated with the program are included in the program files. When appropriate, NSF should ensure that issues involving the program are reviewed by scientific peers and submitted to the NSB for review and approval.

Acceptable Use Policy.

Under a recent amendment to the NSF Act, NSF may permit commercial use of networks supported by NSF only (1) if permitting such use will result in network enhancements that will better enable uses in furthering research and education and (2) if the NSF funding supports access to the network by research and education activities. To ensure compliance with this statutory restriction, we concluded that an AUP is, and will continue to be, necessary to define which traffic constitutes research and education traffic. We recommended that NSF formally seek and respond to public comment on the AUP. We also recommended that NSF determine the best means of ensuring that the AUP is legally applicable to all NSFNET users.

New Solicitation. We also evaluated NSF's plan for the next stage of development for NSFNET. We applauded the issuance of a draft solicitation

to obtain the insights of the community of network users. We recommended that NSF consider whether all future NSFNET awardees be allowed to convey commercial traffic only if doing so does not have a detrimental effect on the services provided to research and education customers. We also recommended that NSF consider whether research and education customers should be charged a lower rate than commercial customers, thus providing additional support to the research and education community—subsidized rates—and thereby further leveraging its funds.

Interagency Coordination. Recently, two other federal agencies announced their intention to award a contract for the phased implementation of a joint computer network. The first two phases of this network will have the same performance objectives as the current and next phases of NSFNET. The High Performance Computing Act of 1991 (HPCA) requires that federal agencies coordinate their network undertakings. A coordination framework has been worked out between the Office of Science and Technology Policy's Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) and the Federal Networking Council (FNC).

Although the HPCA was enacted at a time when preparation of the request for proposals for the other agencies' new network was

far advanced, and FCCSET only recently finalized its scheme for interagency coordination, we concluded that the implementation of all three agencies' networks can still be effectively coordinated. The government and the public will benefit if the agencies analyze potential cost savings that could result from integrating their network undertakings. We recommended that the NSF Director ensure that NSFNET is coordinated with the other agencies' networks to the maximum extent practicable through FCCSET and FNC.

Agency Response. The agency responded favorably to all of our recommendations. NSF has agreed to:

- Thoroughly document significant program decisions and the reasoning behind them, and endeavor to correct and update extant program files.
- Publish a notice in the Federal Register and electronic publications, soliciting the public's views on the AUP, and subsequently publish formal responses to comments received from the public.
- Consider permitting the NSFNET provider(s) to handle commercial traffic only if the quality and quantity or required services for NSF-specified customers are not affected.
- Consider whether it is desirable and practical to require the NSFNET provider(s) to charge commercial traffic a

higher-rate than research and education traffic.

- Improve coordination of the different agencies' networks through FCCSET, and ensure that the FNC will form a study group to consider the extent to which a merger of the agencies' networks would result in potential cost savings.

We were pleased that we were able to reach consensus with the agency on the report's findings and recommendations. We believe the changes we recommended, and that NSF has committed to implement, will strengthen an already successful program.

Ongoing Oversight Activities

The following tables summarize the number of Oversight Office reviews concerning NSF proposal and award actions (Table 4), Committee of Visitor (COV) reports on the technical management of NSF's individual programs (Table 5), and certain conflict-of-interest checks for entering and leaving personnel (Table 6).

Table 4

Directorate	Number of Reviews
Biological Sciences (BIO)	94
Computer and Information Science and Engineering (CISE)	47
Engineering (ENG)	85
Geosciences (GEO)	63
Mathematical and Physical Sciences (MPS)	115
Social, Behavioral, and Economic Sciences (SBE)	60
Total	464

Table 5

Directorate	Total Programs	Programs Reviewed by COV	Reports Received and Reviewed by 03/31/93
BIO	11	5	5
CISE	23	7	7
EHR	24	4	0*
ENG	27	8	8
GEO	38	13	13
MPS	36	14	14
SBE	11	5	5
Total	170	56	52

* Four EHR programs were reviewed, but reports were not received by March 31, 1993.

Table 6

Type of Appointment	Number Reviewed
Employee	130
Intergovernmental Personnel Act Assignee	63
Volunteer	1
Total	194

LEGAL ISSUES

Attorneys in the OIG provide legal advice on all OIG activities, including investigations, audits, and oversight of NSF's functions and programs. OIG attorneys supported many of the activities that are described in other sections of this report.

Under section 4(a)(2) of the Inspector General Act, OIG is required to review and make recommendations concerning legislation and regulations that affect NSF and NSF-funded activities. OIG attorneys are responsible for conducting these reviews, as well as general oversight of NSF's legal activities.

Cost Sharing Rules Need Revision

NSF has increasingly sought to leverage its funds by seeking to share the costs of research and education grants with awardee institutions. While NSF requires a relatively small, predetermined amount of cost sharing for unsolicited research grants, several NSF programs require additional cost sharing, and some proposals promise substantial amounts of cost sharing of their own accord to make their proposals more attractive to NSF. Our audits have identified a number of problems with cost sharing by NSF grantees. We conducted this review to determine if the rules and procedures that NSF applies to cost sharing are an underlying cause for the concerns we have expressed in our previous semiannual reports.

We found that many awardees failed to ensure that their level of cost sharing met the level promised and that many more awardees failed to maintain adequate records detailing the extent of their cost sharing because they were not aware that they were required to maintain such information.

Within NSF, we found that award letters have rarely included explicit language requiring the level of cost sharing that was promised in the proposal. We therefore made a number of recommendations to ensure that awardees implement promised cost sharing.

NSF's appropriations bills require that organizations that receive unsolicited research grants share costs with the agency and that "the extent of cost sharing by the recipient . . . reflect the mutuality of interest of the grantee or contractor and the Government in the research." NSF has implemented this statutory mandate by requiring cost sharing of a minimum of 1 percent from recipients of these grants.

We found no justification for having an agency-wide minimum level of cost sharing with higher levels mandated only for particular *awards* rather than particular programs. The applicable legislation does not establish a particular minimum for cost sharing; rather, it requires a variable level of cost sharing based on the "mutuality of interest" between NSF and the award recipient. Different programs may warrant different minimum levels of cost sharing under the statute. We recommended that NSF determine for each NSF program whether, because of the character of that program, the minimum amount of cost sharing should be higher than the minimum set by NSF.

We also found that in situations where NSF does not require substantial cost sharing, proposals for funding sometimes promise cost sharing either at the initiative of the grantee or as a result of NSF's program solicitation. In many instances, a proposal that promises a large amount of cost sharing will be more attractive to both reviewers and NSF because it reflects a higher level of commitment by the institution and investigators and it allows the agency to leverage its limited funds. In these situations, we believe it is essential that NSF ensure that grantees honor their cost sharing promises.

We found several recurring problems related to cost sharing. Some institutions did not meet their proposed cost sharing levels and were unable to document adequately the actual level of cost sharing achieved. Indeed, some officials from institutions that had submitted proposals with high levels of cost sharing did not realize that they were expected to meet the proposed cost sharing and to maintain documentation of that cost sharing.

Our review found that institutions and investigators are not sufficiently aware of their need to (1) provide promised cost sharing and (2) document the cost sharing provided. In our view, this is because NSF does not routinely include an explicit requirement in the award letter that the institution must provide cost sharing proposed

above the minimum. Furthermore, the cost sharing requirements in NSF's award general conditions and Grant Policy Manual do not cover cost sharing above the 1-percent minimum unless it is "contained or referenced in the grant"; otherwise, only the 1-percent minimum is required. Because of this focus on the 1-percent minimum, awardees are able to propose higher levels of cost sharing to increase their chances of receiving funding, and then, in our view, they are under no clear legal requirement to provide that cost sharing.

NSF recently has taken some steps to address these concerns. Nonetheless, we recommended that NSF ensure that the cost sharing requirement be placed prominently in the award letter. We also recommended that NSF amend its award general terms and conditions to state explicitly that the cost sharing stated in a proposal or other documentation is legally binding when NSF makes an award on the basis of that proposal.

We also made other recommendations to increase awardees' awareness of their cost sharing responsibilities and to enhance NSF's ability to ensure that promised cost sharing is provided.

We will report on NSF's response to our recommendations in our next semiannual report.

Supplemental Conflicts Rules for NSF Employees

The Office of Government Ethics (OGE) promulgated new rules on conflicts of interest. The new rules, which apply to all government employees, supersede most preexisting regulations unless those regulations are reissued. To ensure that agencies had time to reissue supplementary regulations, the OGE rules were issued in final form on August 7, 1992, but did not become effective until February 7, 1993 (the "sunset date").

We recommended that NSF reissue its preexisting regulations on conflicts of interest before the sunset date, and NSF's Office of General Counsel agreed to do so. These supplemental regulations will ensure that:

- Employees who leave NSF will continue to be prohibited for 1 year from representing themselves or anyone else when applying for a grant or other form of support from NSF.
- Former employees will continue to be required to appoint a substitute negotiator when applying for a grant from NSF.
- Individuals who already have an NSF grant and who accept employment at NSF will continue to be required to designate a substitute PI. The substitute PI assumes responsibility for the technical

aspects of the grant and interacts with NSF.

- NSF employees will be restricted from handling proposals for NSF funding from certain categories of institutions or individuals.

The Office of General Counsel provided draft regulations to OGE before the sunset date and OGC advised us that final regulations would be issued soon. Nonetheless, we are troubled by the fact that NSF failed to forward final conflicts rules to OGE before the sunset date.

Financial Disclosure Policy for Principal Investigators

Based in part on our recommendation, NSF proposed a system for identifying potential conflicts of interest on the part of PIs who apply for NSF grants (see 57 Fed. Reg. 31540 [July 16, 1992]). The proposed rule would have required that institutions have in place and enforce a written conflict-of-interest policy and that proposals submitted to NSF disclose investigators' significant financial interests. Comments received from individuals, universities, and organizations have objected to the requirement that grant applicants disclose financial information to NSF; most asserted that universities could adequately handle this responsibility.

We discussed this issue with NSF's Director and NSB members, who, after considering our suggestions, determined that it would be adequate if the investigators' financial interests were disclosed to the universities and **not** NSF, as long as (1) the PI certifies on each proposal to NSF that all financial interests have been disclosed to the university and (2) the university certifies that the disclosed financial interests have been reviewed, and that any conflicts of interest have been resolved. The final financial disclosure policy will be forwarded to OMB and the President's Office of Science and Technology Policy for comment and clearance.

Article on the Potential Liability of Panels Reviewing Allegations of Misconduct

An article written by OIG legal staff entitled, "Liability of Individuals Who Serve on Panels Reviewing Allegations of Misconduct in Science," was published in the Villanova Law Review. Research institutions generally use peer committees to investigate allegations of misconduct in science. Scientists may come to perceive participation on misconduct committees as too risky to their own careers because of the increased public attention to misconduct in science and the possibility of becoming involved in expensive, time-consuming

litigation. Because participation on the committees is voluntary, this perceived risk of liability may completely discourage scientists from serving on them. Should this occur, the scientific community's ability to address and resolve occurrences of misconduct in science would be compromised.

The article addresses the legal concerns committee members might have about liability stemming from participation in misconduct investigations conducted pursuant to federal regulations regarding misconduct in science in federally funded research. The most likely cause of action against an institution or its misconduct committee members is defamation, so the article discusses the elements of a defamation claim against members of institutional misconduct committees.

The good faith participation of committee members in misconduct investigations should not lead to any liability for defamation. Committee members should be protected by at least a qualified privilege, and they may receive a common law absolute immunity for their quasi-judicial actions. However, even with the protection afforded under the common law qualified privilege and institutions' indemnification policies, committee members who are the subject of allegations of bad faith or malice would still

be exposed to the time and expense of litigation. The article suggests that, although current law would likely adequately protect individuals who serve on misconduct panels, the best way to protect such individuals from the expense and inconvenience of frivolous litigation is through a federal statute granting absolute immunity.

Summaries of Other Legal Issues

Compliance Review of Foreign Travel: At NSF's Director's request, we reviewed an NSF-funded trip that he took to attend an advisory board meeting of a foreign national university of science and technology. We concluded that the Director's determination that the trip was related to NSF's mission was within his broad discretion under the NSF Act and the federal travel regulations. We also concluded that the Director's use of premium class travel was within his discretion, and we found no basis to question most of the charges listed on the travel voucher. However, we found that while on this trip, the Director spent one evening in a hotel whose nightly rate exceeded the allowed per diem rate. We concluded that the circumstances did not warrant actual expense reimbursement under federal travel regulations. Therefore, we recommended that the Director reimburse the government the difference between the cost of the hotel and the per diem rate.

Antarctic Waste Regulations: NSF published a proposed regulation dealing with waste management and disposal in Antarctica. We reviewed comments received by NSF from the public as well as other federal agencies. We provided several additional suggestions to NSF concerning the proposed regulation. Based on these suggestions and the public comments, NSF agreed to include a requirement for the **prompt** clean-up of all impermissible releases of waste and potentially harmful pollutants. In addition, NSF decided to make any release, rather than just negligent releases, unlawful. NSF's regulation also includes a certification on its permit application informing the signatory that providing false statements may violate criminal law. On this basis, we believe the regulation represents substantial progress in NSF's efforts to ensure that its Antarctic program is undertaken in an environmentally responsible manner.

Applicability of Federal Statutes in Antarctica:

We have monitored two recent court cases involving the applicability of certain federal statutes to NSF's activities in Antarctica. In the first case, the Supreme Court resolved a conflict between two courts of appeals over whether the Federal Tort Claims Act allows civil actions to be brought by private individuals to recover money damages from the federal government for injuries allegedly suffered in Antarctica because of negligence by the U.S. government. In March, the Court held that the government cannot be sued for injuries sustained in Antarctica. In a second case, a federal court of appeals decided in January that the National Environmental Policy Act applies to NSF's actions in Antarctica. The Clinton administration decided not to seek further judicial review of this decision.

Program Fraud Civil Remedies Act: In our second and fourth semiannual reports, we explained that NSF is not covered by the Program Fraud Civil Remedies Act because the Act authorizes only a government "authority" to bring an action, and "designated federal entities," of which NSF is one, are not included in the Act's definition of "authority." We therefore recommended that Congress amend the Act to include NSF as an "authority." In our seventh semiannual report, we discussed a draft amendment to the Act that we suggested NSF propose that would include NSF as an "authority" under the Act. The proposed amendment has been cleared by OMB and will be forwarded by NSF to the Congress.

SIGNIFICANT AUDIT RECOMMENDATIONS FROM PREVIOUS SEMIANNUAL REPORTS

We are responsible for reporting to Congress and following up on the resolution of audit recommendations. From October 1, 1992, through March 31, 1993, we have resolved 7 reports with significant audit recommendations. These reports were noted in OIG Semiannual Reports 4 through 7.

Ivy League University Fails to Comply With Conflict-of-Interest Rules

Period First Reported: April 1, 1991 - September 30, 1991

NSF awarded a \$1,671,216 grant to a major university to support the development of a pre-college program that teaches physical science by using astronomy. Claimed costs under the grant were \$1,375,240.

Our review disclosed that the university had not followed its standard procedures in awarding a contract to a company that was owned by one of the project's employees, who was also a faculty member. The university violated federal conflict-of-interest rules and other federal guidelines by improperly awarding the contract, not preparing activity reports on a timely basis, not documenting procurements, not reporting program income, and not auditing the university's grant activities and subcontractors under the project.

The university and NSF have continued negotiations throughout this reporting period. In this reporting period, the university agreed to reform its bookkeeping practices, heighten its attention to procurement standards, and reimburse the grant for over \$4,000 in misspent funds. The university also agreed to provide an audit of the contract that was awarded in violation of conflict-of-interest rules.

In addition, the university advised NSF of another potential conflict of interest involving the award of a small consulting agreement to a faculty member who has a close and continuing business relationship with one of the project's employees. On the basis of this new information, and other unresolved issues concerning violations of conflict-of-interest rules, NSF requested that the university reimburse an additional \$7,356 to the grant. The university agreed and provided an audited statement of the activities in question.

We believe the delay in what should have been a relatively straight forward matter for audit resolution illustrates the agency's inability to deal directly and expeditiously with matters involving some of its largest and most prestigious grantees. NSF's responsibility is to act as a steward of federal funds and to hold its funded institutions to consistently high standards of accountability. Until NSF can resolve challenges posed by issues involving conflicts of interest and

personal financial gain with alacrity, its management of the federal funds for which it has been given responsibility is subject to criticism and may be compromised.

Nonprofit Does Not Provide Documentation To Support Reimbursement Claims

Period First Reported: October 1, 1990 - March 31, 1991

NSF awarded 10 grants for an aggregate \$1,998,449 to a nonprofit science society to support inservice training workshops, travel grants, and a young scholars' partnership program. We questioned \$227,738.

Our review found that (1) documentation was not available to determine the reasonableness of consultant's fees, (2) salaries and fringe benefits were claimed at budgeted amounts rather than actual expenditures, and (3) indirect costs were claimed in excess of actual expenditures.

NSF negotiated a settlement with the grantee, whereby the grantee must repay NSF \$48,022. The grantee also made significant changes in its management and accounting systems. A recent A-133 review of the actions taken on these recommendations verified that the procedural changes have been made and are effective.

Commercial Company Inappropriately Claims Costs

Period First Reported: October 1, 1990 - March 31, 1991

NSF awarded a \$205,205 grant to a commercial company to promote scientific research. Our audit reviewed \$146,791 in claimed expenditures, and we questioned \$112,065.

We recommended that NSF terminate the grant and require that the company return \$112,065 and remit \$1,700 in interest and dividends earned on NSF funds to NSF.

NSF worked with the grantee to negotiate a settlement; however, they could not reach an agreement. As a result, NSF issued a management decision disallowing \$53,053 of claimed costs. We expect that the grantee will appeal this decision.

Small Business Innovation Research Company Requests Advances That Exceed Current Needs

Period First Reported: October 1, 1990 - March 31, 1991

NSF provided a \$199,282 grant to a Small Business Innovation Research Company. We audited \$196,964 of this award and questioned costs of \$73,497, which included \$4,967 of interest income due to the government.

We found that the grantee had drawn down advances in excess of its immediate needs, had not paid the interest due the government on these advances, used the wrong fringe-benefit rate in its billings, made mathematical errors in its billings, did not conduct the re-

quired audit, and did not meet its obligations to secure third-party funding for continuation of the program.

NSF disallowed \$71,964 of the questioned costs.

Museum Claims Exceed Actual Costs

Period First Reported: April 1, 1991 - September 30, 1992

NSF awarded six grants totaling \$386,069 to a southwestern museum for research and exhibit development. We reviewed \$267,377 of claimed costs and questioned \$50,503. Costs were questioned because claims for reimbursement exceeded the booked costs for salaries and wages, travel, materials and supplies, and other costs. We also found that cash was drawn far in excess of immediate needs, even on an advance basis, and the advances were not maintained in interest-bearing accounts. NSF negotiated an agreement with the grantee disallowing \$17,497. In addition, the grantee is developing accounting, personnel, and purchasing policies in response to the procedural findings.

Small Business Program Reviewed Resulting in Significant Questioned Costs

Period First Reported: October 1, 1991 - March 31, 1992

NSF awarded two grants for an aggregate \$277,730 to a commercial company that provides technical services in civil engineering risk analyses and reliability assessments. We questioned \$275,089 in costs because the company's accounting system did not meet government standards, the company

had internal control problems, and the company had failed to comply with OMB standards.

There were \$27,616 of questioned costs offset by unclaimed costs, a repayment of \$2,298 to NSF for unallowable costs, and \$1,256 of earned interest not repaid to the government has been billed to the grantee.

University Does Not Receive Required Reports

Period First Reported: October 1, 1991 - March 31, 1992

The university did not require that subcontractors provide audit and other required reports. During this reporting period, the university acquired the needed reports from the subcontractors.

REPORTS WITH OUTSTANDING MANAGEMENT DECISIONS

No management decisions have been made for the following five reports. These reports have questioned costs that have not been resolved. DGC is tasked with resolving recommendations in external audit reports. During this reporting period, DGC resolved 25 reports that had questioned costs and were over 6 months old or that would have reached 6 months old this reporting period. It also resolved two reports that were over 6 months old with compliance findings that were unresolved at the beginning of the period. The following list has fewer reports than any of our prior semiannual reports.

Management Decision: *Management's evaluation of audit findings and recommendations and issuance of a final decision concerning management's response to such findings and recommendations.*

Table 7

<i>Report Number</i>	<i>Title</i>	<i>Date Report Issued</i>
Reports with questioned costs:		
91-1038	Prism Productions	12/21/90
91-1197	Science Weekly	07/24/91
92-1179	National Council of Teachers of Mathematics	07/18/92
92-1303	Joint Oceanographic Institutions	09/30/92
92-1306	University Corporation for Atmospheric Research	09/30/92

Commercial Firm Earns Interest on NSF Funds

Period First Reported: October 1, 1990 - March 21, 1991

NSF awarded two grants totaling \$2,225,496 to a privately owned for-profit corporation that provides technical and scientific information to commercial television stations. Claimed costs were \$2,113,620, and we questioned \$410,338. We recommend that an additional \$21,175 of interest earned on NSF advances be returned to NSF.

The questioned costs resulted from unsupported salary costs being charged to the grant, invoices supporting expenditures not being available, and indirect costs being charged at a rate higher than the actual rate of the maximum provisional rate.

During this reporting period, NSF continued to receive information from the grantee in an attempt to resolve the issues in this report. NSF made an offer for resolution of the report, but the grantee has not yet accepted NSF's offer and has requested that discussions take place during April and May 1993.

Grantee Has Questioned Costs

Period First Reported: April 1, 1991 - September 30, 1991

NSF awarded \$489,369 to a small business for developing and publishing a science and mathematics newsletter for elementary school teachers. Our audit questioned \$115,887 of the \$220,001 in claimed costs because the grantee did not develop an indirect cost proposal and claimed indirect costs in excess of allowable amounts, charged direct and consultant salaries that were not authorized or supported by written agreements, claimed costs in excess of recorded costs, and did not remit interest to NSF.

Negotiations have proceeded during the period. At the end of March, NSF submitted an agreement for closure to the grantee. The grantee had not signed the agreement as of March 31, 1993. We expect an agreement to be reached during the next 3-month period.

Joint Oceanographic Institutions

Period First Reported: April 1, 1992 - September 30, 1992

In audits of approximately \$134 million provided for the Ocean Drilling Program, we questioned \$342,000. These findings resulted from (1) poor practices in the areas of travel, consultants' costs, and audit requirements for subcontractors and grantees, and (2) inattention to the requirements for an internal evaluation of the Ocean Drilling Program. The Joint Oceanographic Institutions is conducting its review every 3 years instead of every 2 years, as required by the contract. Many of the findings resulted from a lack of documentation and/or NSF approvals for funds expended.

The Joint Oceanographic Institutions has agreed to meet with NSF to discuss the unresolved issues. We anticipate that this report will be resolved during the next reporting period.

University Corporation for Atmospheric Research

Period First Reported: April 1, 1992 - September 30, 1992

In a review of UCAR's proposal for indirect cost rates to be used for federal grants and contracts, we found a significant number of issues that needed to be addressed by NSF's program and award management officials. We found that items were included in the

indirect cost centers that did not belong in those accounts, depreciation had been overstated because UCAR charged depreciation of federally funded buildings and equipment, occupancy rates included unallowable interest expense, and indirect cost recovery variances from prior years were not properly recognized.

NSF has worked throughout this reporting period on the appropriate handling of these findings. NSF and UCAR representatives have scheduled a working meeting for the end of April 1993 and a site visit for early May 1993. Resolution is expected before June 1993.

Mathematics Association Claims Indirect Costs in Excess of Costs Incurred

Period First Reported: April 1, 1992 - September 30, 1992

An audit of \$704,653 of claimed costs from a Mathematics Association questioned costs in the amount of \$70,215. These costs were questioned primarily in the area of indirect costs claimed that exceeded actual rates.

During the audit resolution and development of acceptable indirect cost rates, we determined that the Association's accounting system was inadequate to track the data required for indirect cost issues. NSF has requested additional documentation from the grantee to determine and support an acceptable settlement figure. This documentation was not received by the end of the reporting period. Resolution is expected during the next reporting period.

Agency Refusal To Provide Information Or Assistance

The General Services Administration (GSA) purchases or rents buildings on behalf of the government and then assigns all federal agencies to locations it considers appropriate. GSA charges each agency rent based on a yearly assessment of the property's fair market value. GSA has directed NSF to relocate to a newly constructed building in Arlington, Virginia, in 1993. GSA will charge NSF a substantially higher rent for the Arlington location than NSF now pays for its Washington, D.C., location. Before the decision to relocate NSF was finalized, the National Science Board directed us to compare the fair market values of various locations in the Washington, D.C., metropolitan area.

Pursuant to sections 6(a)(3) and 6(b)(1) of the Inspector General Act, all federal agencies are directed to provide the Office of Inspector General with information or assistance that is necessary to perform OIG functions. To compare the fair market values of locations in Washington, D.C., in October 1992, we requested that GSA provide us with a list of the fair market values for leasing government-occupied properties in the Washington, D.C., metropolitan area. On November 6, 1992, GSA advised us that the information we requested "is extremely voluminous, is not collected in one location or data base, and will require hundreds of man hours to collect, compile, and print." On November 12, 1992, we reiterated our request and explained that the information should be readily obtainable because "every year GSA assesses each federal agency an amount based on the fair market value per square foot of leased property occupied by the agency [and] GSA routinely provides that information to individual agencies to be used in their budget submissions to OMB."

On November 20, 1992, GSA sent us another letter that no longer asserted that it would be burdensome to collect the information that we requested. Instead, GSA asked for an explanation of our need for this information, asserting that the "oblique" citation to the Inspector General Act was insufficient. On November 24, 1992, we explained that we were glad that GSA no longer believed obtaining the requested information was difficult, and we further explained that: "As [we are] sure [GSA] well know[s] from dealings with [its] own Inspector General, nothing in the Inspector General Act requires an Inspector General to explain the purposes of a request for information and it is our policy not to do so." Nonetheless, in order "to take every reasonable step in an effort to resolve our differences and to obtain the information we need," we explained that we were "merely endeavoring to perform [a] cost comparison . . . in order to come to a final conclusion about the proper expenditure of funds appropriated to NSF."

On December 4, 7, and 9, 1992, GSA staff orally advised us that we would receive the information we requested on the following day. However, on December 10, 1992, we were orally advised that the General Counsel of GSA had intervened and that the data we requested had been forwarded to GSA's General Counsel for "review and disposition." We formally reiterated our request for an official response from GSA on December 11 and 21, 1992. On December 31, 1992, GSA officially advised us that it would not provide the requested information.

As a direct result of GSA's refusal to provide this information, we were unable to conduct the cost comparison study that NSB requested.

Significant Management Decisions That Were Revised

No significant management decisions were revised during the reporting period.

Inspector General's Disagreement With Significant Management Decisions

The Inspector General has no disagreement with significant management decisions made during this reporting period.

LIST OF REPORTS

We issued the following audit reports and, where applicable, the total dollar value of questioned costs (including a separate category for the dollar value of unsupported costs) is listed for each report.

Unsupported Cost: A cost the OIG has questioned because of a lack of adequate documentation at the time of the audit.

NSF and CPA Performed Audits

<i>Number</i>	<i>Grantee</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-1001	Giner, Inc.	11/30/92	0	0
93-1002	Museum of History & Science	11/30/92	177,033	1,780
93-1003	Microelectronics Center of North Carolina	11/30/92	2,470	0
93-1004	Society for Industrial & Applied Mathematics	12/15/92	20,448	0
93-1005	Minorities in Math, Science, and Engineering	12/30/92	63,315	0
93-1006	Multilayer Optics and X-ray Technology, Inc.	12/31/92	0	0
93-1007	John R. Bayless Co.	12/31/92	0	0
93-1008	National Science Center Foundation	12/31/92	37,454	0
93-1009	Fusion Systems Corporation	12/31/92	1,439	923
93-1010	Saltire Software, Inc.	12/31/92	299	0
93-1011	Daniel H. Wagner & Associates, Inc.	01/26/93	3,069	0

<i>Number</i>	<i>Grantee</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-1012	Scholastic Productions, Inc.	01/26/93	1,227	217
93-1013	Electrochemical Technology Corporation	01/26/93	420	0
93-1014	Medical Foundation of Buffalo	01/26/93	7,718	0
93-1015	Brewer Science, Inc.	02/11/93	40,884	0
93-1016	Ion Physics Corporation	02/11/93	0	0
93-1017	UCAR - Incurred Cost Audit	02/12/93	11,407	8,371
93-1018	MetroLaser	02/16/93	2,740	0
93-1019	Spectral Sciences, Inc.	02/23/93	850	0
93-1020	EXPORTech Co., Inc.	02/23/93	3,521	0
93-1021	Buffalo Society of Natural Sciences	02/23/93	15,869	0
93-1022	Milton Roy Co.	03/03/93	644	0
93-1023	Advanced Technology Materials	03/04/93	7,705	0
93-1024	LaserGenics Corporation	03/16/93	21,220	50
93-1025	Mathematical Assoc. of America	03/08/93	180,449	132,979
93-1026	Science Service, Inc.	03/18/93	4,070	3,810
93-1027	UCAR/NCAR Pre-award review	03/18/93	0	0
93-1028	UCAR/NCAR Pre-award review	03/18/93	0	0
93-1029	Terrapin Technologies, Inc.	03/23/93	0	0
93-1030	Helisys, Inc.	03/23/93	0	0

<i>Number</i>	<i>Grantee</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-1031	Martek Biosciences Corporation	03/23/93	6,592	1,154
93-1032	Robert Ewing Associates & Co.	03/23/93	23,518	14,143
93-1033	International Computer Science Institute	03/23/93	27,540	7,917
93-1034	Arizona State University	03/31/93	100,974	0

INTERNAL AUDITS

<i>Number</i>	<i>Title</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-2101	NSF Voluntary Leave Transfer Program	02/03/93	0	0
93-2102	National Science Board Members' Bank Account	03/31/93	0	0
93-2103	Lobbying Restriction Certifications for FY 1992	03/31/93	0	0
93-2104	Conference and Travel Grants	03/31/93	0	0

NSF COGNIZANT AUDITS

<i>Number</i>	<i>Grantee</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-4001	Quality Education for Minorities Network	12/01/92	550	0
93-4002	Los Angeles County Museum of Natural History Foundation	12/14/92	0	0
93-4003	American Chemical Society	12/15/92	0	0
93-4004	Childrens Television Workshop	12/15/92	0	0
93-4005	California Polytechnic State University Foundation	12/23/92	0	0
93-4006	The Franklin Institute	01/15/93	0	0
93-4007	Missouri Botanical Garden	01/26/93	10,510	0
93-4008	NYSERNet	02/03/93	96,000	0
93-4009	The Bakken	02/03/93	0	0
93-4010	Homer Society of Natural History	02/03/93	0	0
93-4011	Maine Audubon Society	02/09/93	0	0
93-4012	Education & Resources Group	02/10/93	0	0
93-4013	COMAP: Consortium for Mathematics and its Applications	02/10/93	0	0

<i>Number</i>	<i>Grantee</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-4014	Rocky Mountain Biological Laboratory	02/11/93	49	0
93-4015	Monterey Bay Aquarium Foundation	02/16/93	0	0
93-4016	Ohio Academy of Science	02/16/93	0	0
93-4017	Brookings Institution	02/16/93	0	0
93-4018	American Educational Research Association	02/16/93	0	0
93-4019	WICHE - Western Interstate Commission for Higher Education	02/16/93	524	0
93-4020	American Indian Science & Engineering Society	02/17/93	0	0
93-4021	Decision Science Research Institute	02/17/93	0	0
93-4022	Council for the Advancement of Science Writing	02/24/93	0	0
93-4023	Earthquake Engineering Research Institute	02/24/93	0	0
93-4024	Academy of Natural Sciences	02/24/93	885	885
93-4025	American Academy of Arts and Sciences	02/24/93	0	0
93-4026	Archbold Expeditions	02/24/93	0	0
93-4027	Santa Barbara Museum of Natural History	02/24/93	0	0
93-4028	Montana Council of Teachers of Mathematics	02/24/93	0	0
93-4029	Field Museum of Natural History	02/24/93	599	0

<i>Number</i>	<i>Grantee</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-4030	Michigan Molecular Institute	02/24/93	0	0
93-4031	Applied Technology Council	02/24/93	0	0
93-4032	The Norman Howard School	02/24/93	0	0
93-4033	Harbor Branch Oceanographic Institution	02/24/93	0	0
93-4034	San Diego Society of Natural History	03/16/93	0	0
93-4035	Ohio's Center of Science and Industry	03/16/93	0	0
93-4036	Corporation for National Research Initiatives	03/16/93	0	0
93-4037	Bigelow Laboratories for Ocean Sciences	03/16/93	38,099	0
93-4038	Marie Selby Botanical Gardens	03/16/93	10,979	10,979
93-4039	Science Museum of Minnesota	03/23/93	0	0
93-4040	Children's Museum of Boston	03/23/93	0	0
93-4041	American Bar Foundation	03/23/93	0	0
93-4042	Merchant Marine Academy Foundation	03/23/93	0	0
93-4043	Bermuda Biological Station for Research	03/23/93	1,147	1,147

OTHER FEDERAL AUDITS

<i>Number</i>	<i>Grantee</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-5001	New Mexico Highlands University	11/30/92	0	0
93-5002	Western Kentucky University	11/30/92	0	0
93-5003	Mississippi State University	12/01/92	0	0
93-5004	Texas Southmost College	12/01/92	0	0
93-5005	Auburn University ('89)	12/01/92	0	0
93-5006	DePauw University	12/01/92	0	0
93-5007	College of William & Mary	12/08/92	0	0
93-5008	Dekalb College	12/08/92	0	0
93-5009	State of Massachusetts	12/08/92	0	0
93-5010	University of California-Irvine	12/08/92	0	0
93-5011	University of Louisville	12/08/92	0	0
93-5012	Texas Christian University	12/08/92	0	0
93-5013	Atom Sciences, Inc.	12/08/92	0	0

<i>Number</i>	<i>Grantee</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-5014	Carnegie-Mellon University & Software Engineering Institute	12/08/92	0	0
93-5015	Amarillo College	12/08/92	0	0
93-5016	Henderson State University	12/08/92	0	0
93-5017	Lehigh University	12/08/92	0	0
93-5018	Northwest College	12/08/92	0	0
93-5019	State of Texas	12/08/92	0	0
93-5020	Rensselaer Polytechnic Institute	12/31/92	6,183	6,183
93-5021	St. Olaf College	12/31/92	0	0
93-5022	Eastern New Mexico University	12/31/92	0	0
93-5023	Seattle Biomedical Research Institute	12/31/92	0	0
93-5024	Ripon College	12/31/92	0	0
93-5025	State of Minnesota	12/31/92	0	0
93-5026	Auburn University ('90)	12/31/92	0	0
93-5027	Ball State University	12/31/92	0	0
93-5028	Scripps Research Institute	01/07/93	0	0
93-5029	University of Georgia Research Foundation, Inc.	01/07/93	0	0
93-5030	Loma Linda University	01/07/93	0	0
93-5031	University of Guam	01/07/93	0	0

<i>Number</i>	<i>Grantee</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-5032	Brown University	01/07/93	14,700	0
93-5033	Computer Science Corporation	01/07/93	0	0
93-5034	Westinghouse Electric Corporation Science & Technology Center	01/07/93	0	0
93-5035	Aurora University	01/07/93	0	0
93-5036	Drury College	01/07/93	0	0
93-5037	University of Southern Mississippi	01/07/92	0	0
93-5038	Marietta College	01/07/93	0	0
93-5039	KMS Fusion	01/11/93	0	0
93-5040	State of South Carolina	01/11/93	0	0
93-5041	EEG Systems Laboratory	01/11/93	0	0
93-5042	EEG Systems Laboratory	01/11/93	0	0
93-5043	EEG Systems Laboratory	01/11/93	0	0
93-5044	Franklin Institute/Boston	02/03/93	0	0
93-5045	State of Florida	03/23/93	0	0
93-5046	Ophir Corporation	03/24/93	0	0
93-5047	Smithsonian Institution	03/24/93	0	0
93-5048	Columbus College	03/24/93	0	0
93-5049	Notre Dame College	03/24/93	0	0
93-5050	Northern Kentucky University	03/24/93	0	0

<i>Number</i>	<i>Grantee</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-5051	Oklahoma State University	03/24/93	0	0
93-5052	Michigan Technological University	03/24/93	0	0
93-5053	Miami-Dade Community College	03/24/93	0	0
93-5054	California State Bakersfield Foundation	03/24/93	0	0
93-5055	University of Missouri	03/24/93	0	0
93-5056	Pima Community College	03/24/93	0	0
93-5057	Eckerd College	03/24/93	0	0
93-5058	Kentucky State University	03/24/93	0	0
93-5059	Drury College	03/24/93	0	0
93-5060	Lenoir-Rhyne College	03/24/93	0	0
93-5061	University of Cincinnati	03/24/93	0	0
93-5062	Gulf Coast Research Laboratory	03/24/93	0	0
93-5063	Georgetown University	03/24/93	1,610	1,610
93-5064	Indiana University	03/24/93	0	0
93-5065	St. John's University	03/24/93	0	0
93-5066	State of Iowa	03/24/93	0	0
93-5067	Milwaukee County Museum	03/24/93	0	0
93-5068	University of the Virgin Islands	03/25/93	0	0
93-5069	St. Mary's College	03/25/93	0	0

<i>Number</i>	<i>Grantee</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-5070	Resources for the Future	03/25/93	0	0
93-5071	Pacific Lutheran University	03/25/93	0	0
93-5072	Edison Community College	03/25/93	0	0
93-5073	Drake University	03/25/93	0	0
93-5074	Capital University	03/25/93	0	0
93-5075	Albany Medical College	03/25/93	0	0
93-5076	University of Puerto Rico	03/26/93	0	0
93-5077	University of California-San Diego	03/29/93	0	0
93-5078	University of Minnesota	03/29/93	0	0
93-5079	Madonna College	03/29/93	0	0
93-5080	Jacksonville State University ('92)	03/29/93	0	0
93-5081	Institute of Paper Science and Technology, Inc.	03/29/93	0	0
93-5082	Jacksonville State University ('91)	03/29/93	0	0

OVERSIGHT

<i>Number</i>	<i>Title</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
92-3226	Conflicts-of-Interests Reviews: Volunteers Entering and Leaving, August 1992	11/13/92	0	0
92-3227	Conflicts-of-Interests Reviews: Intergovernmental Personnel Act Assignees Entering and Leaving, August 1992	12/12/92	0	0
92-3228	Conflicts-of-Interests Reviews: NSF Staff and Rotators Entering and Leaving, August 1992	02/23/93	0	0
92-3229	Conflicts-of-Interest Reviews: Volunteers Entering and Leaving, September 1992	11/13/92	0	0
92-3230	Conflicts-of-Interests Reviews: Intergovernmental Personnel Act Assignees Entering and Leaving, September 1992	12/11/92	0	0
92-3231	Conflicts-of-Interests Reviews: NSF Staff and Rotators Entering and Leaving, September 1992	12/04/92	0	0
92-3232	Committee of Visitors: Status of Reviews: 4th Quarter FY 1992	11/12/92	0	0
92-3233	Conflicts-of-Interests Reviews: NSF Staff and Rotators Entering and Leaving, October 1992	11/20/92	0	0
92-3234	Conflicts-of-Interests Reviews: Intergovernmental Personnel Act Assignees Entering and Leaving, October 1992	11/23/92	0	0

<i>Number</i>	<i>Title</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
92-3235	Conflicts-of-Interests Reviews: Volunteers Entering and Leaving, October 1992	11/13/92	0	0
92-3236	Conflicts-of-Interests Reviews: NSF Staff and Rotators Entering and Leaving, November 1992	01/18/93	0	0
92-3237	Conflicts-of-Interests Reviews: Volunteers Entering and Leaving, November 1992	02/17/93	0	0
92-3238	Conflicts-of-Interests Reviews: Intergovernmental Personnel Act Assignees Entering and Leaving, November 1992	01/18/93	0	0
92-3239	Conflicts-of-Interests Reviews: Volunteers Entering and Leaving, December 1992	02/17/93	0	0
92-3240	Conflicts-of-Interests Reviews: Intergovernmental Personnel Act Assignees Entering and Leaving, December 1992	02/22/93	0	0
92-3241	Conflicts-of-Interests Reviews: NSF Staff and Rotators Entering and Leaving, December 1992	02/16/93	0	0
93-3200	Committee of Vistors: Status of First Quarter FY1993	03/04/93	0	0
93-3201	Conflicts-of-Interests Reviews: NSF Staff and Rotators Entering and Leaving, January 1993	02/23/93	0	0
93-3202	Conflicts-of-Interests Reviews: Intergovernmental Personnel Act Assignees Entering and Leaving, January 1993	03/11/93	0	0

<i>Number</i>	<i>Title</i>	<i>Date Report Issued</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
93-3203	Oversight Review: Proposal Actions 3rd & 4th Quarters FY 1992	03/09/93	0	0
93-3204	Conflicts-of-Interests Reviews: Volunteers Entering and Leaving, January 1993	02/17/93	0	0
93-3205	Conflicts-of-Interests Reviews: NSF Staff and Rotators Entering and Leaving, February 1993	03/08/93	0	0
93-3206	Conflicts-of-Interests Reviews: Intergovernmental Personnel Act Assignees Entering and Leaving, February 1993	03/11/93	0	0
93-3207	Conflicts-of-Interests Reviews: Volunteers Entering and Leaving, February 1993	03/09/93	0	0
93-3208	Committee of Visitors Reviews: FY 1992	03/08/93	0	0

*Statistical Information
Required by the
Inspector General
Act of 1978,
as Amended*

Table I. Audit Reports Issued With Questioned Costs

		<i>Number</i>	<i>Questioned Costs</i>	<i>Unsupported Costs</i>
A.	For which no management decision has been made by the commencement of the reporting period.	30	3,628,706	197,223
B.	Which were issued during the reporting period.	39	944,710	192,148
C.	Adjustments to questioned costs resulting from resolution activities.	1	30	0
Subtotals of (A+B+C)		70	4,573,446	389,371
D.	For which a management decision was made during the reporting period.	42	2,856,952	210,210
	(i) dollar value of disallowed costs	0	1,356,621	N/A
	(ii) dollar value of costs not disallowed	0	1,500,331	N/A
E.	For which no management decision has been made by the end of the reporting period.	28	1,716,494	179,161
	Report for which no management decision was made within 6 months of issuance.	4	938,771	7,503

Funds to be Put to Better Use: *Funds the OIG has identified in an audit recommendation that could be used more efficiently by reducing outlays, deobligating program or operational funds, avoiding unnecessary expenditures, or taking other efficiency measures.*

*Inspector
General
Reports*

Table II. Audit Reports Issued With Recommendations For Better Use of Funds

		Number	Dollar Value
A.	For which no management decision has been made by the commencement of the reporting period.	0	0
B.	Which were issued during the reporting period.	0	0
Subtotals of A & B		0	0
C.	For which a management decision was made during the reporting period.	0	0
	<i>(i) dollar value of recommendations that were agreed to by management</i>	0	0
	<i>based on proposed management action</i>	0	0
	<i>based on proposed legislative action</i>	0	0
	<i>(ii) dollar value of recommendations that were not agreed to by management</i>	0	0
D.	For which no management decision has been made by the end of the reporting period.	0	0
	Report for which no management decision was made within 6 months of issuance.	0	0

Prepared by:

*Office of Inspector General
National Science Foundation*

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**OFFICE OF INSPECTOR GENERAL
SEMIANNUAL REPORT TO THE CONGRESS**