Semiannual Report to the Congress

Number 16
October 1, 1996 Through March 31, 1997

Office of Inspector General
National Science Foundation

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Letter to the National Science Board and the Congress

This report describes our activities and accomplishments for the first half of FY 1997. 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.

As described in the following pages, NSF has been working with the President's Office of Science and Technology Policy to write a definition of misconduct in federally funded research that can be implemented as the uniform federal definition. Work toward this objective is ongoing, and we are hopeful of success. We do want to note, however, that one of the individuals who was integral in the development of NSF's definition, policies, and practices in this area will not be available to assist in the government-wide task.

Dr. Donald E. Buzzelli retired during this reporting period after 22 years of federal service—all with NSF. Dr. Buzzelli's deep intellectual understanding of the issues that bridge science and philosophy made him highly qualified to suggest viable approaches to the problems that arise in resolving allegations of misconduct. Dr. Buzzelli's insights will be missed, but his legacy of excellence provides a benchmark for us as we continue to work in this area.

Linda G. Sundro
Inspector General
April 30, 1997

Executive Summary

FINANCIAL AUDITS

We completed the first audit of NSF's financial statements. We issued a qualified opinion on NSF's *Statement of Financial Position* because NSF does not have an adequate system to account for property and equipment (page 2).

We reviewed NSF's cooperative agreement with a company that registers Internet domain names and recommended that federal oversight over Internet address allocation continue. We estimate that, by the time the agreement ends, the company must allocate more than $60 million in fee revenues to a fund for the "enhancement of the intellectual infrastructure of the Internet." Instead of allowing the company to expend these funds, we recommended that NSF allocate these funds through its merit-based, peer review process (page 10).

At three Federally Funded Research and Development Centers, we identified over $1 million in funds that can be better used to support research, and we questioned over $600,000 (page 20).

We developed a new performance measure to track monetary and compliance findings that involve cost sharing (pages 84 and 26).

PROGRAM EVALUATIONS

At the request of the House Committee on Science, we reviewed NSF policies concerning grantee use of equipment to provide services that may compete with companies (page 77).

INVESTIGATIONS

A federal jury found a principal investigator (PI) at a small business guilty of knowingly and intentionally causing NSF to wire funds to his company after the PI had stopped all research (page 33). A federal grand jury indicted a scientist for obstructing justice after forging letters of recommendation to NSF (page 39).

Instead of recusing themselves, two individuals who entered into employment arrangements with an NSF awardee participated in NSF award decisions that involved that awardee (page 38).

MISCONDUCT IN SCIENCE

The National Science Board reviewed NSF's experience in handling misconduct in science matters and reaffirmed NSF's preference to maintain the definitions and processes that have served the agency well (page 47).

We referred two reports with recommendations for findings of misconduct in science and debarment to NSF's Deputy Director for adjudication (page 49).

INSPECTIONS

We initiated an internal inspections program designed to help NSF implement the Government Performance and Results Act. In our inspection of NSF's Western Europe Program, we found that the Program needs to improve its ability to readily generate accurate data to support performance measures (page 68).

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Acronyms

AOR	Authorized Organizational Representative
CAS	Cost Accounting Standards
CFO	Chief Financial Officer
COI	Conflict of Interests
CPA	Certified Public Accounting Firm
CPO	Division of Contracts, Policy and Oversight
EAR	Division of Earth Sciences
FASAB	Federal Accounting Standards Advisory Board
FFRDC	Federally Funded Research and Development Center
FTE	Full-Time Equivalent
GMRA	Government Management Reform Act
GPRA	Government Performance and Results Act
IN-91	Important Notice 91
INT	Division of International Programs
IPA	Intergovernmental Personnel Act
MS&E	Misconduct in Science and Engineering
NASA	National Aeronautics and Space Administration
NSB	National Science Board
OGC	Office of the General Counsel
OMB	Office of Management and Budget
OPS	Office of Policy Support
PI	Principal Investigator
PO	Program Officer
PP&E	Property, Plant, and Equipment
rDNA	Recombinant DNA
REU	Research Experiences for Undergraduates
SBIR	Small Business Innovation Research
SBE	Directorate for Social, Behavioral and Economic Sciences
SRAS	Statement of Recommended Accounting Standards
WEP	Western Europe Program

Reporting Requirements

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

Requirements		Page
Section 4(a)(2)	Review of Legislation and Regulations	Throughout
Section 5(a)(1)	Significant Problems, Abuses, and Deficiencies	Throughout
Section 5(a)(2)	Recommendations With Respect to Significant Problems, Abuses, or Deficiencies	Throughout
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Section 5(a)(4)	Matters Referred to Prosecutive Authorities	32
Section 5(a)(5)	Summary of Instances Where Information Was Refused	None to Report This Period
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Section 5(a)(8)	Statistical Table Showing Number of Reports and Dollar Value of Questioned Costs	83
Section 5(a)(9)	Statistical Table Showing Number of Reports and Dollar Value of Recommendations That Funds Be Put to Better Use	82
Section 5(a)(10)	Summary of Each Audit Issued Before This Reporting Period for Which No Management Decision Was Made by the End of the Reporting Period	93
Section 5(a)(11)	Significant Management Decisions That Were Revised	None to Report This Period
Section 5(a)(12)	Significant Management Decisions With Which the Inspector General Disagrees	None to Report This Period

AUDIT

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

AUDIT OF THE FOUNDATION'S FINANCIAL STATEMENTS

The Government Management Reform Act of 1994 (GMRA) amended the Chief Financial Officers (CFO) Act and increased NSF's requirements for the preparation of financial statements, and, consequently, the breadth of our internal audit responsibilities. Before GMRA was enacted, NSF's CFO was required to prepare, and we were required to audit, financial statements for the agency's $40 million Donations (Trust Fund) Account. This year, GMRA required the preparation of statements and an audit of accounts comprising NSF's entire $3.2 billion budget.

The primary purpose of the CFO Act is to bring more effective general and financial management practices to government by improving its systems of accounting, financial management, and internal controls. The Act imposes corporate models of financial reporting and audit assurance so both the Congress and Executive Branch managers can use this information to make decisions about financing, managing, and evaluating funding programs. Each agency's CFO is responsible for developing and maintaining adequate financial management systems and internal controls as well as for generating reports on these systems that meet audit requirements.

Financial statements, and their accompanying audit opinions, can be powerful tools for managers, but a significant amount of preparation is necessary for their production. GMRA's timetable for CFO audit implementation gave NSF's financial managers several years to prepare for the first audit. NSF's CFO and his staff used this time to work with a large, private-sector certified public accounting (CPA) firm to ensure that NSF's financial statements would be complete, accurate, and timely. Because the CFO audit requirement is an annual requirement in perpetuity, the time and money expended to restructure financial systems and correct deficiencies represents an investment that should be recouped in the years to come.

NSF's Financial Statements

NSF's CFO prepared two principal financial statements for FY 1996 accounts. The *Statement of Financial Position* reported on the agency's assets, liabilities, and net position (or equity position). The *Statement of Operations and Changes in Net Position* is an accounting of NSF's operations for the fiscal year and provides information about sources of revenue and expenses, describes differences between the revenues and expenses, and accounts for the change in the agency's net position at the beginning and end of the fiscal year.

The CFO is also required to incorporate financial performance measures into the statements. Ultimately, the financial performance measures derived from the agency's financial systems will be compiled with other administrative and mission measures that are being educed pursuant to the Government Performance and Results Act (GPRA) to provide comprehensive measures of NSF's performance.

OIG's Audit Opinions

OIG contracted with a major, private-sector CPA firm to conduct the audit of the FY 1996 statements. The 1996 fiscal year closed on September 30, 1996. From early in November 1996 through the end of January 1997, we worked with the CFO and his staff testing account balances and helping to resolve issues as they arose. Final statements were provided to us on January 31, 1997, and we forwarded the results of our audit to NSF management on February 28, 1997, to meet the statutory March 1 deadline.

We audited NSF's principal financial statements so we could express an opinion on whether the statements, and accompanying footnotes, fairly present the agency's financial position and results of operations in accordance with applicable accounting standards.

"Opinions" on financial statements are expressed in one of the following four categories.

"Unqualified" or "clean" opinions indicate that the auditor has determined that the statements present the assets, liabilities, revenues, expenses, and net financial position of the agency fairly, in all material respects.

"Qualified" opinions indicate that, except for one or more significant problems, the statements fairly present the assets, liabilities, revenues, expenses, and net financial position.

"Adverse" opinions signal serious problems with the statements and indicate that the overall financial position has not been fairly presented.

A "**disclaimer of opinion"** states that the auditor does not express an opinion on the statements. A disclaimer is used when the auditor has not, or cannot, perform sufficient audit work to form an opinion on the statements.

Auditors are also required to identify and report the existence of "material weaknesses" and "reportable conditions" in audited financial systems. A "material weakness" is an element of the internal control structure that does not help reduce to a relatively low level the risk that significant errors or irregularities will go undetected. "Reportable conditions" are significant deficiencies in the internal control structure that could adversely affect NSF's ability to maintain effective internal controls.

Auditors make the determination of what amounts are "material" to the financial statements. A judgment on materiality is particularly important in audits where large amounts of money are being accounted for—it is essentially the assessment by the auditor of how large an accounting error must be to affect his or her opinion on the statements.

Auditors also prepare a separate letter report to NSF, often referred to as the "management letter." This document addresses less significant internal control weaknesses and errors in accounting to provide financial managers with insights into how to improve their systems.

It is the goal of every CFO and Inspector General to work together so that "clean" opinions on each of the agency's financial statements can be rendered in the shortest period of time. However, the General Accounting Office, the American Institute of Certified Public Accountants, and the President's Council on Integrity and Efficiency have all issued guidance reminding Inspectors General that they must render audit opinions in an atmosphere that enables them to maintain an independent attitude and appearance.

FY 1996 Audit Results

We disclaimed an opinion on NSF's *Statement of Operations and Changes in Net Position.* Since this was the first year NSF's CFO produced this statement, it would not have been cost-effective for the government to invest in a thorough audit because of the high level of effort required, and difficulties that would be encountered, to examine properly the cumulative effect of NSF operations during prior, unaudited fiscal years. We plan to audit this statement for FY 1997 using the FY 1996 statements for comparison.

Our management letter identified an internal control weakness affecting the compilation of this statement. We determined that NSF's accounting for cumulative results of operations and unexpended appropriations needs improvement. Accordingly, we recommended that NSF revise its method of accounting for cumulative results of operations from prior fiscal years by properly identifying and aggregating all sources of revenues and expenses. This will allow NSF to support an opening balance for cumulative results

of operations in the FY 1997 *Statement of Operations and Changes in Net Position.*

We issued a qualified opinion on NSF's *Statement of Financial Position* because we determined that NSF had not maintained an adequate system to accurately and completely account for its capitalizable property, plant, and equipment (PP&E). Ninety-nine percent of NSF's $922 million PP&E balance is located at sites and facilities operated by NSF grantees and contractors—including substantial assets located in New Zealand and Antarctica, which are used in the operation of the U.S. Antarctic Program. NSF's financial managers rely primarily on financial statement audits conducted by the awardees' independent auditors to ensure compliance with the requirement for accurate and complete listings of PP&E assets. As a standard practice, NSF receives property lists from its major grantees and contractors that have custody of NSF-owned assets. Adjustments are made to NSF's property records to bring those records into agreement with the property balances reported by the grantees and contractors.

In anticipation of the first-year audit, NSF's CFO requested and obtained certified inventories from the grantees and contractors that held most of the NSF-owned assets during FY 1996. Those lists were used to adjust the property accounts presented as PP&E on NSF's *Statement of Financial Position.*

We attempted to verify the accuracy of the PP&E account balance. Our test results raised concerns related to the safeguarding of assets, the recording of PP&E transactions, the completeness and adequacy of the documentation supporting the assets listed on the custodians' property listings, and inconsistencies related to the recording of salvaged assets. As a result, we could not verify that the PP&E balance reported in the *Statement of Financial Position* was accurate and complete.

In addition to concerns about PP&E, our audit identified other material weaknesses and reportable conditions in NSF's systems of internal controls. Material weaknesses were identified in NSF's systems for reporting accrued liabilities

and making advances to grantees, and receiving advances from other federal agencies. These material weaknesses were the result of significant omissions and overstatements related to advances and liabilities incurred in the last quarter of the fiscal year that were later adjusted on the financial statements. We recommended that NSF revise its accounting procedures for year-end advances and liabilities.

Other reportable conditions identified in the Independent Auditors' Report on Internal Control Structure related to NSF's system for developing performance measures and the system through which NSF identifies and tracks contingent liabilities. NSF's 1996 Annual Financial Report contains a discussion of its major programs and related activities as well as descriptions of significant accomplishments. There are, however, few, if any, performance measures that present financial or program outcomes in terms of dollars or other quantitative measures. We were unable to determine whether NSF's internal control structure was adequate to generate reliable and complete performance measures. Similarly, we were unable to evaluate the financial systems' capability to capture cost and resource data and relate them to program activities. We recommended that NSF develop performance measures that describe programmatic outcomes and develop a system that will properly aggregate underlying cost and resource data.

Our review also identified weaknesses in NSF's ability to identify contingent liabilities. In particular, lawsuits have been filed against NSF awardees by third parties with respect to matters arising from NSF contracts or grant awards. NSF's Office of the General Counsel (OGC), which is responsible for keeping management apprised of potential claims, initially took the position that such claims did not have to be considered for financial statement purposes because NSF is not a party to the actions and would not be legally obligated to satisfy judgments entered against its contractors or grantees. We believe federal auditing standards require that management report these claims as contingent liabilities because awardees may seek

reimbursement for successful claims from NSF. This could affect the allocation of program funds in future fiscal years. In line with generally accepted accounting standards, NSF management agreed to report as contingent liabilities the potential losses arising from claims against NSF awardees when (1) the likelihood of loss becomes probable, (2) the amounts of loss can be reasonably estimated, and (3) NSF management determines that the agency will probably pay them. Based on the information provided in response to our request, we also determined that OGC does not have a formal system for identifying contingent liabilities. We recommended that a formal process for identifying the existence of contingent liabilities be implemented. This process should include more effective communication between OGC and NSF program managers about claims occurring in the course of NSF awards.

Our management letter also recommended improvements in controls over cash receipts and disbursements; the review and approval of accounting entries, records, and documentation; the audit follow-up process; and electronic data processing and physical security.

Working Toward Clean Opinions for the FY 1997 Statements

The single largest impediment we have identified to date to producing uniformly "clean" opinions in FY 1997 remains the PP&E issue. Under currently existing, generally accepted accounting standards, NSF is required to provide accountability and control over these assets. NSF property records are expected to (1) identify physical quantities of government-owned and leased property and its location, (2) capture information on all acquisitions (including cost, estimated life, disposals, and retirements), and (3) enable periodic independent verifications.

NSF management has suggested that it might be appropriate to reclassify all NSF-owned PP&E held by grantees and contractors as "stewardship investments." Under currently existing accounting standards, stewardship investments encompass expenses that have substantial long-term benefit, but have no commercial application or market value. The Federal Accounting Standards Advisory Board's (FASAB) Statement of Recommended Accounting Standards (SRAS) No. 8, entitled "Supplementary Stewardship

Reporting" (effective beginning in FY 1998), states that PP&E meeting certain stewardship criteria may be reported on a supplementary stewardship statement and treated as an expense in the year of purchase. In this way, PP&E meeting the stewardship criteria and treated as an expense in the year of purchase would, in subsequent years, no longer be subject to audit in the *Statement of Financial Position.*

At this time, NSF's CFO believes that it may be possible to reclassify all, or nearly all, of the $922 million in PP&E assets currently shown on the principal statements and move them to a supplementary statement. However, right now, SRAS No. 8 is only a *recommended* accounting standard, which will not become effective until FY 1998. Further guidance as to its applicability to NSF assets held by contractors and grantees is expected from FASAB, the General Accounting Office, and the Office of Management and Budget (OMB) in the near future. The CFO, the Inspector General, and the independent public accountants agree that further guidance on the implementation of this recommended standard is needed before it is prudent to remove large amounts of PP&E assets from the principal statements.

NSF's management has demonstrated a sound understanding of, and commitment to, implementing the CFO Act's financial and administrative management principles. However, CFO implementation is not without substantial cost. To date, NSF management has expended approximately $510,000 to hire a private-sector accounting firm to assist in the preparation of financial statements and to advise management on issues that arose during the FY 1996 audit. Management anticipates that it will spend an additional $215,000 on preparation of the FY 1997 statements and resolution of other outstanding audit issues. OIG has spent about $500,000 in staff resources and private-sector accounting firm fees to audit the FY 1996 statements. Resolution of the PP&E issue may ultimately necessitate more audit expenditures. In the coming months, we will be working closely with NSF management and the National Science Board's (NSB) Committee on Audit and Oversight to set priorities, identify options, and allocate resources for our ongoing implementation of the CFO Act.

FUNDS PUT TO BETTER USE

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

Fee for Domain Name Registration Services Can Be a Source of Future Federal Investment in Research

We reviewed NSF's current arrangement for providing Internet domain name registration services through a cooperative agreement with a commercial enterprise ("the Company"). For the Internet to operate, the origin and destination points for information routed between computers over the network must have unique addresses. The Internet's world wide web addresses, such as "www.fastlane.nsf.gov," are now widely used by the general public. The part of the address after the last period ("gov" in the above example) is called the "top-level domain name," and the part of the address immediately to the left of the last period ("nsf" in the example) is called the "second-level domain name." Domain names map to Internet number addresses, which identify each computer interface attached to the Internet and are used in routing information over the network. Domain names are popular with Internet users because they are easier to remember than number addresses. Our review focused on

- the need for continued federal oversight of Internet addresses and
- the Company's use of the fee revenues collected under the cooperative agreement to create a pool "for the preservation and enhancement of the 'Intellectual Infrastructure' of the Internet in general conformance with approved Program Plans."

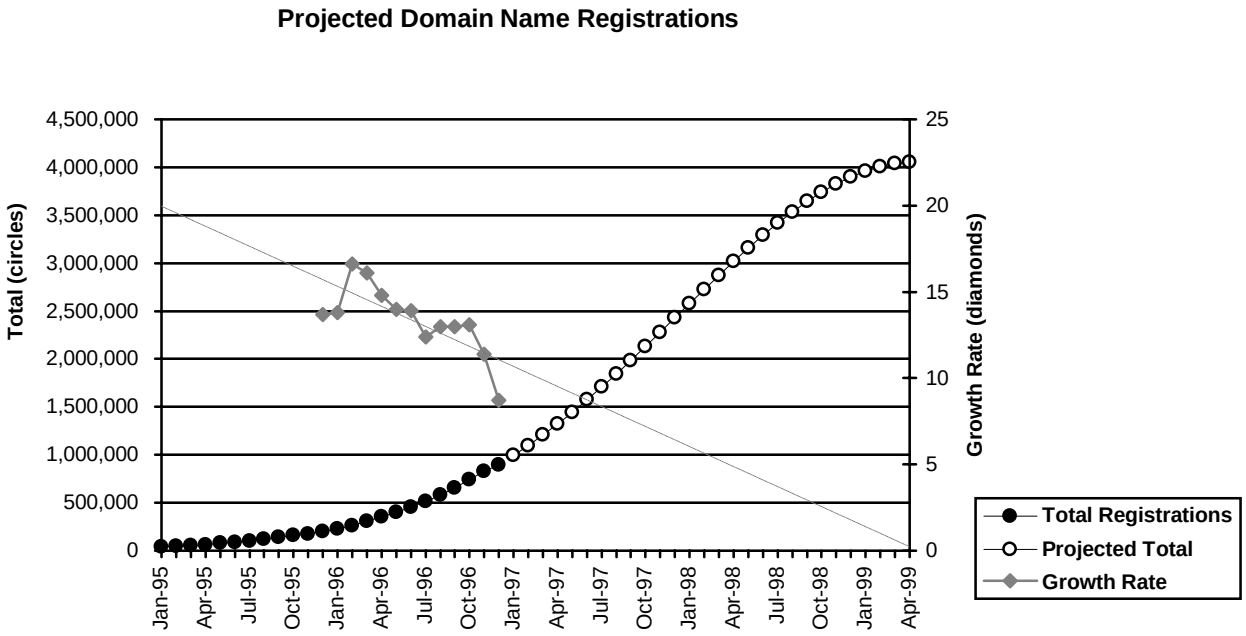
Federal Investment in the Internet. The government has made major investments in the creation of the Internet. In addition to developing operational precursors and subsidizing their use by the research and education community, federal funding has supported research and development of related technologies. From FYs 1990 through 1995, NSF support for fundamental research on communications theory and data networks as well as the provision of network access for the science and education communities exceeded $230 million.

The government will continue to invest in the Internet. In the fall of 1996, the President identified the need for a $500-million investment in the next generation of the Internet over the next 5 years. The contributions of NSF and the other implementing agencies toward this new initiative could total as much as $100 million in FY 1998.

Domain Name Registration. In January 1993, NSF entered into a 5-year cooperative agreement with the Company to provide registration services. NSF amended that agreement in September 1995 and authorized the Company to charge fees for its domain name registration services. Under this current arrangement, the Company collects fees from individuals registering in the top-level "com," "net," and "org" domains and from NSF for registrations in the top-level "gov" and "edu" domains. The chart on page 12 shows the total (solid circles) and percentage increase per month (monthly growth rate) (diamonds) in domain name registrations.

Using conservative methods to estimate future growth, we estimate that the number of domain name registrations will reach about 4 million by mid-1999.

Fees are not charged separately for Internet number addresses. Therefore, all costs of the services supported by the fees fall only upon those registering names. Imposing number address fees would distribute this burden more equitably throughout the Internet community.



Internet users have complained that NSF has given the Company a "monopoly." The Company is acting pursuant to a legally binding agreement with NSF, in a manner that NSF has scrutinized and deemed acceptable. The agreement has not conveyed any authority to the Company that extends beyond the duration of the agreement, which expires on September 30, 1998. The agreement limits the Company's ability to impose registration fees because any changes to the fee structure require NSF approval.

If, after the period of the cooperative agreement ends, the Company does not operate under NSF direction and is somehow able to continue to provide its current registration services and collect registration fees, nothing would prevent the Company from using its de facto control of Internet addresses to reap unreasonably high profits from granting access to the Internet. It has been proposed that domain names be registered by several different organizations in other top-level domains

equivalent to the “com,” “net,” and “org” domains presently administered by the Company, in order to ensure that ensuing competition for customers among these alternative registries will stimulate improved services at lower prices. That proposal contemplates that a single, private nonprofit entity will select the companies to register domain names; another proposal would allow a nonprofit entity to allocate number addresses. In our view, proposals that rely on one private entity with the authority to select and confer legitimacy upon domain name registries or number address distributors do not allay concerns about abuse of market power and anti-competitive behavior. In light of the significant public interest in the continuing stability of the Internet and the large federal investments at stake, we recommended that federal oversight of Internet addresses continue. Absent continued NSF oversight of Internet name and number addresses, we recommended that NSF urge the Federal Communications Commission to consider exercising its authority under the Communications Act of 1934, as amended, to ensure impartial and equitable allocation of Internet addresses.

Application of Infrastructure Development Fund. Under the current cooperative agreement, 30 percent of the revenue generated from domain name registration fees are deposited into a pool for the preservation and enhancement of the Internet. The Company has suggested that these funds be turned over to a private foundation to support Internet improvement projects. In our view, the Company’s proposal would entrust these funds to an entity that would lack any relevant experience and that could not be held accountable for ensuring that the application of the resources will best serve the Internet community and the public. We believe that NSF possesses the requisite understanding of the important technical issues and the confidence of the research community to apportion such funds wisely among its Internet-related research programs through its merit-based, peer-review processes to the benefit of the nation as a whole as well as the Internet community. Therefore, we recommended that NSF receive these funds to support NSF program activities. We intend to examine the infrastructure pool accounts when we audit the

Company's costs, revenues, and practices under the cooperative agreement.

We recommended that NSF continue the cooperative agreement through the September 30, 1998, expiration date. Even assuming that the Company's actual deposits to the infrastructure pool reflect only its current apparent collection rate of 50 percent, $60 million would be provided to NSF from the pool over the present term of the agreement. Our recommended approach would ensure the continuation of federal oversight while long-term policy decisions are made, preservation of NSF audit rights, and appropriate use of taxpayer funds.

Funds to be Put to Better Use

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

Administrative Options. We recommended that NSF use the income from the administration of Internet addresses to supplement direct federal appropriations, with the ultimate objective of making NSF's investment in network-related basic research, service, and development self-sustaining. We estimated that by adopting our recommended approach, NSF can generate more than $300 million over 5 years to invest in Internet-related projects. With this income, NSF could fund much of the next generation Internet initiative or continued fundamental research on communications and data networks.

We suggested different administrative options to achieve this fiscal objective, including administration through a "performance based organization" or an independent commission. Each of the options could accommodate different ways of registering domain names. For example, registration services could be performed by several different organizations competing for customers; alternatively, a single organization could

be competitively selected to provide the service at a reasonable profit for a fixed period. All of these options would, however, ensure that federal oversight of Internet addresses continues and that income generated from the administration of Internet addresses would be used to supplement the federal investment in network-related basic research, service, and development. To ensure that the Internet address allocation rules and fee structure adopted by NSF are fair, we suggested that NSF follow procedures that facilitate public participation and open decisionmaking.

We believe our recommendations would ensure the protection of the public interest in the resource; the availability of funds to support future network-related basic research, service, and development; fairness to the Internet community; and fairness to the taxpayers.

NSF's Response to Our Recommendations

NSF responded to our report by stating that "long-term issues raised by [our] recommendations may indeed require additional government oversight." Nonetheless, NSF decided that it would not be appropriate for NSF to continue its oversight of Internet address registration, and it referred our report for consideration by an informal interagency task force chaired by OMB. NSF explained that "[i]n the meantime, next-step solutions . . . are being implemented," citing the proposals discussed above that would create new, top-level domain name and Internet number address registries. We believe these proposals could result in a concentration of market power and possible anti-competitive behavior. As a result, we are referring these matters to the Antitrust Division of the Department of Justice for analysis and suggested disposition.

In its response, NSF also pointed out that the Company has proposed a new, non-profit organization to use the funds "for the preservation and enhancement of the 'Intellectual Infrastructure' of the Internet . . . ." We are aware of the Company's proposal, and we question whether it is either necessary or efficient to create a new, nonprofit organization—and the associated administrative overhead—in order to distribute funds, collected under an NSF cooperative agreement, to support the development of Internet infrastructure. NSF's response

also gave no indication whether these funds—generated under an NSF award—would be distributed by relying on the rigorous system of merit review that is the hallmark of NSF's research investments. We believe NSF should instead receive and distribute those funds to support projects selected by NSF's well-established, merit-based peer review system.

NSF added that if, by mutual agreement with the Company, NSF believes it would be appropriate to end the cooperative agreement before its expiration date, it will do so. We remain especially concerned that premature termination of the agreement will allow the Company to reduce greatly the amount of funds it contributes to the infrastructure pool. The Company agreed to contribute substantial monies toward the future development of the Internet by funding the pool with 30 percent of all revenues received from user fees. (We estimate that the infrastructure pool would receive $60 million over the lifetime of the agreement.) We do not believe NSF should prematurely terminate the cooperative agreement, which will, in essence, waive the company's obligation to meet that commitment. At a minimum, NSF should ensure that the Company fully meets its obligation to provide funds to the infrastructure pool through September 1998.

Reducing Electricity Costs Would Make More Funds Available for Science

NSF pays for electricity costs at a number of institutions either because NSF provides most or all of the institutions' support or because of the large electricity requirements of certain scientific instrumentation. A number of factors indicate that these costs can be reduced either by taking advantage of recent changes in the electric power industry to obtain lower rates or by implementing conservation measures to reduce electricity consumption. We conducted a review of the potential mechanisms through which NSF grantees could lower their electricity costs and the extent to which such measures could result in cost savings to NSF.

We found that NSF grantees may be able to obtain lower electricity rates by

- contracting for delivery of low-cost electricity in states that will soon require retail competition ("retail wheeling"),

- obtaining the voluntary cooperation of the local utility in transmitting less expensive power from another source, or

- negotiating with the local utility for lower rates.

Recent legislation at both the federal and state levels is opening the electric power industry to competition, but, at present, the implementation of retail competition depends on state law. In certain states that are about to require retail competition in the electric power industry, grantees may be able to contract for delivery of lower-cost electricity. In states that have not implemented retail competition in the electric industry, NSF grantees may be able to obtain less expensive power through the voluntary cooperation of the local utility in transmitting less expensive power from another source. One university saved approximately 18 percent of its power costs with this type of arrangement. Finally, 45 states permit the negotiation of rates with the local electric utility in certain situations. With the imminent availability of competitive suppliers of electricity in many states, local utilities may be willing to negotiate lower rates in the hope of retaining the customer when competition begins. One NSF grantee negotiated a 17-percent rate decrease from its local utility.

In addition to seeking the lowest possible rates, NSF grantees can save on electricity costs by introducing or supplementing energy conservation measures. Significant energy conservation is a goal that most institutions should be able to reach. Three institutions that we reviewed reported cost savings of 8 to 20 percent from their energy conservation programs.

We reviewed electricity costs at six NSF-supported facilities that have either a line item for electricity in their NSF award budgets or are centers for which NSF pays all or a large part of the operating costs, including electricity. We recommended that NSF require that these and other institutions for which NSF pays significant electricity costs evaluate the feasibility and cost-effectiveness of electricity rate reduction and/or conservation measures and incorporate in the awards a plan to minimize electricity costs.

Although it is not possible to determine the precise value of the cost savings that

could be achieved by such a requirement, estimates of savings from rate reductions related to the restructuring of the electric industry are generally at least 10 percent. Further, conservation measures by grantees should also result in cost savings of at least 10 percent, which is about half of the reduction federal law requires for federal facilities by the year 2000. Although many institutions may be able to take advantage of both rate reductions and conservation measures, we assumed that each institution would be able to use only one approach. As a result, we conservatively estimate cost savings of 10 percent.

Based on this figure, the six institutions covered by our review should save $2.2 million over a 5-year period beginning in FY 1999 from implementation of all reasonable and cost-effective electricity savings measures.

NSF responded favorably to our recommendations. To help make grantee institutions aware of opportunities to save on electricity costs, NSF plans to post our report, with links to other information on this topic, on NSF's website.

Choosing the Least Expensive Air Fare Will Stretch NSF Travel Funds

NSF can save more than $300,000 over 5 years if its travelers use the least expensive available government airfares when departing from or returning to one of the three airports in the Washington metropolitan area. The General Services Administration, which negotiates airfares for the government, has negotiated with the carrier for airfares that vary for departures from Baltimore-Washington International Airport, Washington National Airport, and Washington-Dulles International Airport. We reviewed NSF travel for FY 1996 and found that travelers did not always use the airport with the least expensive airfare. Even after offsetting the cost of increased ground transportation, these travelers could have realized significant transportation cost savings by choosing to travel from the airport offering the lowest airfare to their destination.

We identified 10 cities to which travel costs vary by between $100 and $500 per round trip depending upon which Washington area airport is used. Last year, NSF paid for 400 trips between Washington and these 10 cities without taking advantage of the least expensive airfare. NSF could reduce airfare costs by more than $125,000 by encouraging its travelers to purchase the least expensive airline tickets. After considering the additional ground transportation costs associated with more distant airports (that often have less expensive fares), we conservatively estimate that NSF travelers could net at least $60,000 savings per year or more than $300,000 over 5 years.

We recommended that NSF alert travelers to the airfare variations and actively encourage travel from the airport that provides the most cost-effective transportation. NSF management agreed to take steps to alert travelers of the airfare variations and suggest that authorizing officials ask to be informed when a traveler's airfare is $100 or more than the lowest fare. However, management indicated that it would not issue a policy requiring use of the lowest cost transportation because it does not consider such a policy to be either necessary or enforceable.

OVERSIGHT OF NSF FEDERALLY FUNDED RESEARCH AND DEVELOPMENT CENTERS

Federally Funded Research and Development Centers (FFRDCs) are organizations that conduct research and development activities that are administered by an industrial firm, a university, or a nonprofit institution and are substantially financed by the government to either meet particular research objectives or provide major research facilities for which NSF is the primary funding source. NSF is responsible for auditing five FFRDCs. The magnitude of the annual NSF investment in these organizations, over $125 million, warrants our continued oversight.

Federally Funded Research and Development Center Made Errors in Billing NSF for Research and Education

We reviewed the investments and activities related to a database of federal research and development efforts created by one of NSF's FFRDCs. This FFRDC is administered and operated by a large corporation that also administers several non-NSF FFRDCs.

Since the FFRDC began operations in September 1992, its mission has been to provide independent and unbiased research and analytical support on issues of relevance to science and technology policy in the United States. NSF is responsible for financial, management, and audit oversight of the FFRDC's contract. This contract, with an original budget and subsequent modifications representing over $18 million, is in its fifth and final year but may be renewed without recompetition for an additional 5 years.

The FFRDC began work on the database in September 1992 to assist its researchers in providing support to the government. Essentially ready for deployment by December 1995, the database tracks federal research and development investments and activities at each federal agency by program and award levels and by fiscal year. Pending resolution of the issues noted below, NSF modified the contract to allow the FFRDC to make the database available to federal agencies for an annual subscription fee.

In August 1996, the FFRDC responded to NSF's request for a detailed description of database-related investments and activities. The FFRDC asserted that the database was not a deliverable on the contract, and that it used $1.548 million of

its own, rather than federal, funds to develop the database. Although the FFRDC initially billed costs associated with database development to the government, the FFRDC asserts that this was an error that was subsequently corrected by transferring those costs from the contract to the nonprofit corporation that operates the FFRDC. Thus, the FFRDC's position is that the government did not pay for, does not own, and cannot assert ownership or control over the database.

We conducted an independent review of these issues. The evidence we reviewed indicated that the database was considered a deliverable on the contract; the FFRDC used federal funds to develop the database; and the database cost $2.189 million to develop, which is $641,000 more than the $1.548 million cited by the FFRDC.

If NSF elects to accept the FFRDC's ownership of the database, we recommended that the FFRDC reimburse NSF for the database costs ($641,000) remaining on the contract and pay interest on the federal funds used to develop the database. We also recommended that the cognizant audit agency determine whether database operating losses, if any, should be included in the FFRDC's overhead pool.

In response to our report, the FFRDC suggested a "partnering arrangement" with NSF to ensure that the database continues as a viable and useful tool for federal agencies. This partnering arrangement would be structured to address such issues as allocation of revenues, division of operating costs, assignment of intellectual property rights, responsibility for control, and treatment of user groups, such as the government, federal contractors, and federal grantees. NSF management is reviewing our report and the FFRDC response.

National Research Center Could Increase Funds Available for Science

The Observatory is a national research center for radio astronomy, which is managed and operated for NSF by a private, nonprofit association of universities. The Observatory is headquartered in Virginia with observation facilities located nationwide.

In 1990, the Observatory's managing organization entered into a fixed-price contract with a company to build a large telescope at one of its observing sites. The Observatory expects construction to be complete in 1998. During our review, we learned that the contractor building the telescope had submitted claims to the Observatory for $28.6 million more than the amount of the original fixed-price contract. The Observatory's managing organization will use internal staff and a CPA firm to audit the claim. This audit began on March 3, 1997, and is expected to take 3 to 6 months to complete. We plan to monitor the situation closely.

We also found opportunities for the Observatory to reduce costs or increase revenue without eliminating services essential to carrying out its mission. By reducing costs and increasing revenue, the Observatory could increase funds that are available for science. Our recommendations for savings and extra revenue will result in $1,172,465 over 5 years. Observatory management agreed with $324,215 in savings and agreed to undertake studies or reviews of savings totaling $721,945, but disagreed with proposed savings of $126,305.

Sick Leave Buy-Back Program. To discourage sick leave abuse and enhance employee morale, the Observatory reimburses hourly employees annually for unused sick leave. We recommended the program's elimination, which would save $194,855 over 5 years. Observatory management agreed to phase out this program.

Cafeteria and Dormitory. The Observatory subsidizes the cost of food and lodging services provided to its employees and their families, visiting astronomers, and guests. We recommended that the Observatory revise its pricing policies to reduce the current subsidy. By revising its prices, we estimated that the observatory could save as much as

$725,550 over 5 years. Observatory management disagreed with our recommendation to begin charging employees for meals at one of the remote sites, but agreed to study its operating procedures and expects to reduce the overall operating loss.

Visitor Center. We found that the Observatory's employee associations earned income at the visitor center using government resources and property (project income) and used the income to pay for unallowable costs. We recommended that project income only be used for costs that are allowable under federal awards. This should save the Observatory as much as $122,700 over 5 years. Observatory management agreed to review visitor center operations.

Recreation Facilities. The Observatory provides employee recreation facilities free-of-charge to attract and retain qualified employees and their families at the isolated observing site. We recommended that the Observatory begin charging a small monthly fee. For example, a monthly $10 fee would provide an additional $58,200 over 5 years. The Observatory agreed to implement a user fee.

The Newsletter. The Observatory publishes an informational newsletter, which it mails free-of-charge to readers. Since the publication is already available on the Internet, we recommended that the Observatory discontinue the paper version. An Internet-only newsletter should save $21,160 over 5 years. The Observatory intends to reduce the number of paper versions as it gains experience with electronic distribution.

Renovation and Replacement Reserve. We noted that the building lease for the Observatory's headquarters includes a provision that it fund a maintenance reserve of $10,000 per year in addition to the building's maintenance costs. We believe the maintenance reserve would be unallowable under federal regulations. Under the lease's current provisions, it is possible that the Observatory could pay $50,000 over the next 5 years without receiving any benefit. We recommended that the Observatory negotiate provisions within the lease that will discontinue payments to the maintenance reserve and instead allow it to pay only for necessary renovations and repairs. Observatory management

agreed with our recommendation and will make efforts to remove the reserve provision from the lease.

Grantee's Refusal to Comply With Cost Accounting Standards Results in Reduced Fees From the Government

During this reporting period, we followed up on several issues related to an FFRDC administered by a university consortium (the Center) for which we have federal cognizant oversight responsibility. These issues included following up on other agencies' and NSF management's responses to our prior reports' recommendations regarding fees paid to the Center, determining the status of a contract proposal the Center submitted to the National Aeronautics and Space Administration (NASA), and reviewing the Center's proposal to purchase a new building.

Prior Reports Related to Fees. In Semiannual Report Number 13 (page 7), we estimated that the government could save $4.5 million over a 5-year period (about $900,000 annually) by eliminating the fees its agencies pay to the Center. In Semiannual Report Number 15 (page 14), we explained that, despite our recommendation, agencies have not decided to discontinue paying these fees. Since agencies are continuing to pay these fees, we recommended in Semiannual Report Number 15 that NSF not allow the Center to charge to the government, through the Center's indirect cost pools, depreciation for equipment purchased with federal management fees. We also recommended that NSF require that the Center account separately for management fees paid by federal agencies and review the uses of these fees. NSF management has not responded to our recommendations.

Compliance With Cost Accounting Standards. In Semiannual Report Number 13 (page 7), we reported on the Center's need to comply with Cost Accounting Standards (CAS). We reported that CAS identifies 19 areas that an organization should address in its accounting system. CAS also requires that an organization prepare an annual disclosure statement. The disclosure statement describes an organization's accounting practices including, but not limited to, the distinction between direct and indirect costs and the organization's method of allocating costs.

NASA requested that, as the Center's cognizant federal agency, we review a contract proposal it received from the Center. In Semiannual Report Number 14 (page 14), we reported that the Center requested over $1.3 million in fees as part of this contract proposal. In light of our recommendations, NASA chose not to award the contract to the Center because of the Center's refusal to comply with CAS. Instead, NASA awarded the contract to a University. The Center subsequently submitted a proposal to the University for a subcontract, which included $570,000 in management fees for the Center. This amount for fees is $730,000 less than the Center would have received from NASA under the original contract proposal. The University expects to fund the Center's proposal.

Proposed Building Purchase. In December 1996, the Center notified NSF of its intent to purchase a $4.6 million building near one of its main facilities. The Center has been renting space in the building (approximately 85 percent of the available square footage). A provision included in the cooperative agreement requires that the Center obtain NSF approval before it purchases any real property. We reviewed the Center's proposal and determined that, although the Center's estimates of savings did not reflect an analysis based on net present values, the purchase of the building, in lieu of continued leasing, would result in significantly reduced cost to the government.

Under the agreement with the Center, NSF is committed to pay the full costs of space associated with the Center's buildings without regard to the amount of vacant space. However, in the new building, NSF will not be obligated to pay for vacant space. Therefore, we supported the stipulation contained in the letter from NSF approving the purchase that the Center not create vacant space in its fully supported government buildings by relocating staff from these buildings to the newly purchased building.

AUDITS RESULTING IN QUESTIONED COSTS

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

Institutions Had Significant Shortfalls in Cost Sharing and Did Not Promptly Start Projects

We conducted a review of the Academic Research Infrastructure program, a cross-disciplinary program that provides awards to renovate research facilities and purchase major scientific instrumentation. To ensure that our review included awards that were completed or in-progress, we limited our review to awards made during FY 1994. We reviewed all 72 of the facilities' renovation grants, with budgets that totaled $55 million. In addition, we reviewed 50 instrumentation awards with combined budgets of $10 million.

We found two problems with the institutions' management of these awards: shortfalls in cost sharing and delays in the commencement of the projects. Although institutions agreed to contribute to the costs of the renovation and acquisition of scientific instruments as a condition of the awards, we found that over one-third of the institutions were significantly behind in meeting their cost-sharing commitments. At the time of our review, these institutions had met only $7.8 million of $11 million in cost-sharing commitments. In addition to this shortfall, these institutions will be required to contribute another $11.2 million toward their cost-sharing commitment as they complete these NSF-funded projects. We believe that, without NSF oversight, the cost-sharing commitments from institutions may not be fulfilled by the time the projects are completed. We recommended that NSF monitor institutions to

ensure that they meet their cost-sharing obligations. We also recommended that NSF require that any institutions unable to meet their total cost-sharing commitments adjust their claims against NSF to reflect a decrease in total project costs and maintain their proportional contribution toward the project. NSF agreed to monitor the institutions and determine whether remedial actions are necessary.

We also found that 14 of the institutions delayed initiation of the projects by 10 to 26 months. Other NSF-funded research institutions that were prepared to begin projects when these awards were made may have been able to make more effective use of the funds. Accordingly, we recommended that NSF award grants only to institutions that have demonstrated that they can promptly begin projects. NSF agreed that, while it is preferable for institutions to begin projects soon after the award is made, this is not always possible.

Audits at School Systems and Educational Organizations Result in $1.4 Million in Questioned Costs

As reported in previous semiannual reports (Semiannual Report Numbers 13 and 14 pages 13 and 17, respectively), our surveys and audits of awardees under the Statewide Systemic Initiative program disclosed that improvements were needed in subawardee monitoring and subawardee cost-sharing contributions. Several of the subawardees were school systems and other educational organizations. Based on these findings, we initiated surveys of selected school systems and other educational organizations to determine whether the awardee's accounting system and related records required further auditing.

During this reporting period, we completed audit surveys of five school systems and three other educational organizations. These surveys disclosed that the financial systems could adequately account for NSF funds. Accordingly, for these eight entities, no further auditing was required.

We also completed audits of five school systems and five other educational organizations. The audits questioned $552,853 in claimed costs for the five school systems and $936,706 for the five other educational organizations.

These questioned costs consisted of $400,994 in unsupported labor and related fringe-benefit costs, $219,039 in unsupported and unauthorized use of participant support costs, $259,965 in unsupported consultant costs, and $226,546 in indirect costs claimed in excess of allowed amounts. Additional questioned costs of $383,015 resulted from charges in excess of actual costs incurred, unsupported charges for materials, equipment, travel, and sub-contracts and for cost-sharing shortfalls.

Several of those institutions at which NSF awards are still active have fallen behind in meeting their cost-sharing commitments. We believe it is likely the institutions will fall short of meeting these commitments by $168,179. We have characterized these potential shortfalls as "at risk."

NSF management will resolve the findings resulting from the audits with the award recipients during the audit resolution process.

Based on these audit results, we believe additional audits of school systems and other educational organizations are justified, and we are implementing an appropriate audit program.

University Falls Short in Meeting Its Commitment to Cost Share in an Ice Core Custodial Facility

A major University did not fulfill its cost-sharing commitment on a cooperative agreement. The University received a $1.7 million award under a cooperative agreement to build and manage a facility to be used for storing, curating, and studying ice cores recovered from the polar regions of the world. The University was selected for the award following a competition in which the predecessor institution, which had satisfactorily managed and stored the ice core samples since 1975, had made a significantly lower-cost proposal to continue operating the existing facility.

The cost-sharing commitment was one of the factors NSF considered in selecting the University for the award. We reported that the University had not fulfilled its cost-sharing commitment and recommended that NSF offset payments under future awards to the University by $148,398 to recover the shortfall in the University's cost-sharing commitment under the cooperative agreement. We also repeated a previous recommendation that the University account for cost sharing in separate accounts that are integrated in the University's accounting system.

Questioned Cost

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

AGENCY ACTION ON PRIOR AUDIT FINDINGS

Award Funds Used to Pay State Sales Taxes May Be Avoidable

In Semiannual Report Number 15 (page 2), we reported on our review of state sales tax payments charged to NSF awards. We estimated that, by adopting our recommended approach, beginning in FY 1997, NSF would be able to allocate more than $20 million over 5 years for science and engineering research and education.

NSF responded to our recommendations during this reporting period. NSF agreed that the award terms and conditions should be modified to prohibit the payment of sales taxes under NSF awards for those states that have exemptions for the payment of sales taxes. NSF intends to implement a specific policy statement on this issue and will ensure that information on existing exemptions is disseminated to the greatest extent practicable. NSF also agreed to establish guidance applicable to large equipment purchases, which will ensure that program and grant officials consider whether to avoid sales taxes by having NSF retain title to the equipment.

NSF decided not to implement our recommendations that NSF modify the award general conditions to expressly prohibit payments of state sales taxes on purchases funded by NSF awards and that NSF pursue federal and state legislative remedies to exempt purchases under NSF awards from the imposition of state taxes. Although NSF has the legal authority to do so, NSF does not believe it should now deviate from government-wide cost principles that recognize the allowability of state sales taxes.

Without endorsing or opposing our recommendations, NSF informed OMB of these recommendations and requested that OMB consider whether federal cost principles should be changed to make sales taxes unallowable. OMB replied that its “cost principles circulars have consistently classified state sales and use taxes as an allowable cost of Federal awards . . . [and that] OMB is not currently considering any changes to its government-wide policies on the allowability of sales and use taxes.”

Savings Planned Through Electronic Information Dissemination

In Semiannual Report Number 15 (page 5), we reported on our review of information dissemination at NSF, particularly electronic publishing. We estimated that NSF could reduce the volume of paper it disseminates by 50 percent by the beginning of FY 2001, NSF could save over $1.5 million per year in printing and postage costs. We recommended that NSF adopt this objective as an agency-wide goal and formalize that commitment through the Government Performance and Results Act (GPRA) process with specific goals for each NSF division.

In this reporting period, NSF agreed that the goal of reducing paper documents by 50 percent within 3 years was achievable. To meet the goal, NSF will review current plans for converting to electronic dissemination. NSF will consider whether to include it as a GPRA performance goal.

INVESTIGATIONS

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

EMBEZZLEMENT OR DIVERSION OF NSF GRANT FUNDS

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

Small Business Innovation Research Cases

NSF's Small Business Innovation Research (SBIR) program is designed to stimulate technological innovation in the private sector, strengthen the role of small businesses in meeting federal research and development needs, and increase the commercial application of the results of federally supported research. NSF provides funds to SBIR companies in two phases. Phase I awards are for up to $75,000 and are provided to test the viability of research ideas. Companies that are successful in the first phase may compete for Phase II awards. In Phase II, companies may receive up to $300,000 to develop their idea for commercial application. NSF is required by statute to allocate 2 percent and 2.5 percent of its research funds to the SBIR program in FYs 1996 and 1997, respectively. Based on this formula, NSF spent about $40 million on SBIR awards in FY 1996 and expects to spend approximately $50 million in FY 1997. Eleven other federal agencies also provide funds to SBIR companies.

During the reporting period, a Principal Investigator (PI) was convicted of fraud involving an NSF SBIR award. In addition, we referred another SBIR case to the Department of Justice and are continuing work on other SBIR matters.

Jury Convicts PI in Federal District Court

In September 1990, NSF awarded a $250,000 Phase II SBIR grant to the PI's west coast company to conduct research for the development of a "soft x-ray" laser. The PI proposed to conduct the research using a highly specialized laser at a prominent west coast research facility. We initiated an investigation after NSF auditors were unable to conduct a routine audit of the company's SBIR Phase II grant because the PI would not respond to repeated requests to schedule the audit. The PI also failed to submit the required final report on his research activities.

Our investigation found that the PI only conducted research for 3 of the 24 months required under this award. After the first 3 months of research, the PI discontinued his research efforts and did not notify NSF that he had stopped conducting research. The Grant General Conditions require that the PI notify NSF of such a dramatic change in level of effort. During an investigative interview, the PI stated that he intended to complete the research but had been excluded from using the laser at the research facility. The PI admitted to our agents that he knew he was required to notify NSF of his change in level of effort, but that he did not do so because he feared that NSF would suspend and terminate the grant.

After the PI stopped conducting research, he obtained the remaining $210,000 in grant funds awarded for the research by completing, signing, and submitting to NSF's Division of Financial Management several requests for advance payment or reimbursement for expenses incurred. In each request, the PI certified that "all outlays were made in accordance with the grant conditions." Based on these certifications, NSF wired grant funds to the company's bank account. In addition, the PI completed and submitted Federal Cash Transactions Reports to NSF that certified that "all disbursements have been made for the purposes and conditions of the award" throughout the grant period. Our investigation determined that the PI did not use these funds to support research under the grant. Instead, the PI used the funds for a variety of other purposes, including personal living expenses, travel and equipment unrelated to the grant, personal investments, and repayment of personal debts.

We referred our findings to the U.S. Attorney's Office for the Northern District of California, and, on November 16, 1995, the PI was indicted by a Federal Grand Jury. On January 7, 1997, the case was brought to trial in the Federal District Court. NSF employees from the Division of Financial Management, the Division of Grants and Agreements, the SBIR office of the Engineering Directorate, and our office testified as witnesses for the prosecution.

On January 18, 1997, a federal jury found the PI guilty of three counts of 18 U.S.C. § 1001, *False Statements*, and three counts of 18 U.S.C. § 1341*, Wire Fraud*. The jury concluded beyond a reasonable doubt that, beginning in September 1991, the PI knowingly and intentionally submitted false certifications to NSF, causing NSF to wire grant funds to the company's bank account after the PI had ceased working on the grant. Sentencing has been scheduled for May 1997. The PI faces a maximum sentence of 30 years imprisonment and a fine of $1.5 million.

NSF employees who testified at the trial returned with a new appreciation for the rigors of proving facts in court. They briefed their coworkers on the importance of many NSF procedures, including maintaining complete records of every grant, and processing only those forms that are properly completed by grantees because properly maintained records and consistent practices are essential to the government's ability to prove its case in court. This case also caused us to examine NSF's current requirement that certain records be retained for only 3 years. We recommended that NSF change this policy to ensure the retention of such records to cover the statute-of-limitations periods associated with criminal and civil enforcement actions. NSF is taking steps to extend the record retention period.

TABLE 1:

INVESTIGATIVE ACTIVITY

Active Cases From Previous Reporting Period	41
New Allegations	26
Total Cases	67
Cases Closed After Preliminary Assessment	1
Cases Closed After Inquiry/Investigation	29
Total Cases Closed	30
Active Cases	37

Company Submitted False Claims to Obtain Payment From NSF

In order to achieve the SBIR program's goal of promoting commercial innovation, NSF requires that each SBIR award be made to a business rather than an academic institution and that the PI be primarily employed by the business during the period of the award.

We received an allegation that the final report for an NSF SBIR award described work that had been conducted by a university, rather than by the SBIR company. Our investigation found that the PI, who was the owner of the company, also had a long-standing employment relationship with a midwestern university. The PI's SBIR Phase I final report described research performed by the university for a non-NSF federal research project. The final report presented this work—which the PI and his university colleagues had performed at the university before NSF made the SBIR award and before the PI took a leave of absence from his university position to work with the SBIR awardee—as if it were original research conducted at and by the SBIR awardee under the NSF SBIR grant. The PI also received and deposited into his checking account U.S. Treasury checks representing the first two payments for the NSF SBIR Phase I grant while he was a full-time employee of the university and before he began working on the SBIR award for the SBIR company.

By depositing the U.S. Treasury checks before he took the leave of absence necessary to make the SBIR company eligible for the award and by submitting a final report that falsely presented his university research as work performed under and for the SBIR award by the SBIR company, the PI may have violated federal statutes.

We referred our findings to the U.S. Attorney to determine whether the PI violated 31 U.S.C. § 3729-3733, the civil *False Claims Act*. If he is found liable, the government may recover treble damages as well as impose penalties of $10,000 for each false claim.

Results of Ongoing SBIR Reviews

During this reporting period, we continued to support the efforts of the U.S. Attorney to resolve two cases involving companies that received duplicate SBIR awards, previously reported in Semiannual Report Numbers 14 (page 43) and 15 (pages 28 and 29). In one case, we found additional duplicate awards and referred that additional evidence to the appropriate U.S. Attorney.

Our office also identified three other companies that received duplicate SBIR awards from different federal agencies. As with previous cases of companies receiving duplicate SBIR awards, these companies were able to receive duplicate awards for the same projects because they did not reveal pending proposals in their duplicate proposals sent to other federal agencies. Our reviews found that all three companies had submitted proposals to NSF and that two companies received NSF SBIR awards. However, the duplicate awards that we identified were from other federal agencies, not NSF. We referred these matters to other Offices of Inspector General and will work with those offices to resolve these cases.

In addition, as members of a government-wide task force, we routinely meet with federal agents from other offices and Assistant U.S. Attorneys to discuss investigative issues involving SBIR cases, and we are currently assisting various agencies with several other ongoing SBIR investigations.

During our ongoing reviews of SBIR grants, we identified a 1994 project that appeared to be funded by NSF and another federal agency. We found that the company notified NSF that it had received a duplicate award after the NSF award was made and that the company requested a change in scope for the NSF grant. We found that no action had been taken on the company's request and that NSF still listed the grant as active. In 1994, the first and second payments totaling $42,244 for NSF's SBIR grant were automatically sent to the company after the award letter was mailed. After we recommended that NSF initiate immediate action, NSF terminated the $63,367 grant and requested that the company return the $42,244 that had been paid to the company.

OTHER INVESTIGATIVE MATTERS

Improper Hiring Practices in NSF Directorate Lead to Increased Cost and Conflicts of Interests

In early 1996, NSF's Office of the Director instructed an NSF directorate to reduce the number of individuals then employed directly by the directorate (categorized as full-time equivalent [FTE] employees) and to reduce the number of employees then assigned from other organizations to the directorate on a temporary basis (under the Intergovernmental Personnel Act [IPA]) in order to operate within the directorate's allocation. To do so, the directorate arranged to convert two temporary positions previously held by NSF FTEs, and one position held by an IPA at NSF, to non-NSF positions funded by an FFRDC that receives most of its funding from the directorate. By amending a cooperative agreement, the directorate provided the FFRDC with additional funds to cover the salaries, benefits, and indirect costs for the three positions. The FFRDC then entered into employment arrangements with the individuals and assigned them back to NSF the next day. The individuals occupied the same positions at NSF and had the same responsibilities before and after their positions were converted to the FFRDC.

As a result of these staffing arrangements, NSF pays about 71 percent more for the same services by the same individuals than it had when the individuals were NSF FTEs or IPAs. Most of the cost increase results from indirect costs that were not paid when these individuals were NSF FTEs or IPAs.

The arrangement also led to violations of conflict-of-interests laws and regulations. During the 4-month period between learning of the upcoming conversion and its occurrence, the IPA assignee, who serves as a director of an organization, participated personally and substantially in matters involving the FFRDC, with which he had an arrangement concerning prospective employment. Instead of recusing himself, the office director continued to provide recommendations and advice on matters in which the FFRDC had a financial interest.

In addition, in 1994, a division within the same NSF directorate entered into an IPA agreement with the same FFRDC to staff an associate program officer position. The FFRDC paid the program officer's salary and was technically his employer while he was assigned to NSF. However, the program officer never worked at the FFRDC, and had no prospect of returning to the FFRDC upon leaving NSF. For this reason, he did not consider himself to be affiliated with it for conflict purposes. Instead of recusing himself, the program officer participated in the review and approval process for 12 proposals that resulted in 8 awards to the FFRDC.

We referred these matters to the Department of Justice, as required by law. The Department determined that NSF should resolve the matters administratively and declined prosecution. Accordingly, we referred the matter to NSF's Office of the Director to take appropriate corrective action.

Forged Letters of Recommendation

A scientist submitted forged letters of recommendation to NSF as part of the application materials for NSF's Alan T. Waterman Award, a prestigious research grant worth $500,000 over 3 years. Our investigation found that the scientist produced the nomination form and three letters of recommendation, forged the names of his former colleagues on these documents, and then submitted them to NSF. We also found that this scientist submitted a false document in a proposal for the NSF CAREER Award that claimed he would be collaborating with a former colleague when, in fact, that former colleague had not agreed to any future collaboration. The CAREER program is an NSF-wide activity that encompasses all areas of research and education in science and engineering.

The scientist attempted to obstruct our investigation. During an investigative interview with our agents, the scientist admitted to producing the false documents, but stated that his colleagues had given him authority to write the references and sign their names. After the interview, the scientist contacted the former

colleagues whose names he forged and asked them to state that they had previously given him authority to write the references and sign their names when, in fact, they had not done so. We referred this matter to the appropriate U.S. Attorney's Office, and a federal grand jury indicted the scientist for violating 18 U.S.C. § 1001, *False Statements,* and 18 U.S.C. § 1505, *Obstruction of Proceedings Before Departments, Agencies, and Committees*.

PI Obtained a Kickback From Graduate Student

We conducted an investigation with the Federal Bureau of Investigation concerning a PI at a western university. The PI's research was supported by an NSF engineering grant and several state grants. We found that the PI promised graduate students financial assistance in the form of research assistantships and often failed to provide the promised assistance. For one graduate student, the PI did not provide research assistantships that he promised to the student for two consecutive academic semesters. This situation caused the graduate student to work in the university cafeteria to meet her financial obligations. In the third semester, the PI offered the graduate student a $1,500 research assistantship on the condition that she return $700 of the funds to him. The graduate student accepted the assistantship and provided a $700 check to the PI because the student feared retaliation from the PI, who was the student's advisor.

The joint investigation found that the source of the kickback came from state grant funds and not federal funds. Therefore, we referred the evidence of the kickback to state law enforcement officials.

We also found that the PI misused NSF funds by paying graduate students for research not directly related to the NSF-funded projects. The PI was able to misuse NSF funds by concealing grant financial expenditure reports from the co-PIs. The university conducted a review of the PI's use of grant funds, treatment of graduate students, and other issues, and refused to renew the PI's appointment as an Associate Professor. In addition, the university removed the PI from the NSF grant and voluntarily returned $6,500 to the NSF grant. During our investigation, the PI left the United States and has not returned.

Embezzlement of Federal Funds by University Administrators

A joint Department of Defense OIG and NSF OIG investigation found that 3 university administrators embezzled over $90,000 by submitting over 600 false petty cash vouchers through a southwestern university's accounting system. The administrators produced fake invoices that were submitted to the university as support for the petty cash vouchers. The administrators randomly charged the false vouchers to different research accounts to conceal the amount of cash that the administrators were receiving through the false vouchers. About $40,000 was charged to NSF grants and Department of Defense contracts that had been awarded to the university. We referred our findings to the appropriate U.S. Attorney's Office.

Settlement of Civil Complaint to Stop Fraudulent Scholarship Program

In Semiannual Report Numbers 14 (page 46) and 15 (page 31), we reported that we were working with the U.S. Postal Inspector Service to investigate an individual who had solicited money from students by falsely claiming that his organization, "National Science Program," could award or obtain academic scholarships. Despite signing an agreement with the U.S. Postal Service in 1994 to discontinue such activities, the individual persisted in this conduct. In 1996, the Federal Trade Commission joined our investigation and filed a civil complaint against the individual and an associate based on their ongoing misrepresentations.

During this reporting period, the individuals agreed to a settlement. The agreement requires the individuals to pay a combined monetary penalty of $19,000 and to forfeit $4,440 obtained through the scheme to the government for redistribution to the students who had been defrauded. The individuals are also permanently restrained from engaging in or assisting others engaged in scholarship services businesses unless they first obtain combined performance bonds of $350,000.

Duplicate Travel Reimbursements by PIs

During this reporting period, our office conducted a review of travel charges made to several NSF grants. We found three unrelated cases involving PIs who received travel reimbursements from NSF grants and from another organization for the same travel expenses. In each case, the PI submitted a travel voucher against an NSF grant and did not reveal that he had also submitted and received a reimbursement for travel expenses from the organization hosting the meeting to which he traveled. Our investigations determined that, although each PI received duplicate travel reimbursements, none of the cases showed a pattern of behavior that would signify criminal intent to defraud. In all three cases, the PIs received two sets of overlapping, but not identical, reimbursements. The PIs each stated that they were unsure if the host institution would cover their expenses and that they intended to repay the NSF grants once they received payment from the host organization. Each PI admitted that he mistakenly forgot to reimburse his NSF grant after receiving the payments from the host organization. In all three cases, the PIs reimbursed their respective NSF grant after we initiated our investigation. About $3,000 was reimbursed for these duplicate payments. We referred these cases to the Department of Justice, which declined prosecution.

Agency Agrees to Post Firearm Warnings

A federal criminal statute, 18 U.S.C. § 930, generally bars non-law enforcement personnel from bringing firearms or other dangerous weapons onto federal premises. The statute requires that notice of the statutory prohibition be posted conspicuously at each public entrance. Successful prosecution by the Department of Justice

of persons who endanger NSF employees by bringing weapons onto NSF premises may therefore depend, in part, on posting of the required notices. We recommended that NSF post these notices, and the agency agreed to do so.

Improper Signatures on Proposal Cover Sheets

We reviewed the agency's practice concerning certification signatures on proposal cover sheets. PIs and co-PIs certify on cover sheets to the accuracy of factual statements. Authorized Organizational Representatives (AORs) certify to provisions concerning debt, debarment and suspension, lobbying activities, drug-free workplace, financial conflicts of interests, and institutional compliance with award terms and conditions. The cover sheets warn that willful provision of false information or concealment of a material fact is a violation of criminal law (18 U.S.C. § 1001). This warning is intended to alert signatories to their personal responsibility for the accuracy of the information provided to, and to facilitate appropriate enforcement action by, the agency.

We found instances in which certifications were signed by someone other than the person identified on the cover page as the signatory. In some instances, there was no indication that the certification was signed by proxy. To assess the frequency of this practice, we reviewed certifications of PIs, co-PIs, and AORs on proposal cover sheets from a random sample of 114 proposals. We identified 114 PIs, 78 co-PIs, and 114 AORs—306 signatures in all. We found 19 anomalies. These included missing signatures, substitute signatures, and instances in which the PI and AOR were the same person.

We recommended that NSF take steps to ensure that all certifications be signed by the individual identified as the certifying party; that proposals with improper signatures not be processed until authentic, original signatures are received; and that PIs and co-PIs generally not be permitted to sign certifications intended for AORs.

Our recommendations were made to NSF's Office of Information and Resource Management (IRM) and Office of Budget, Finance and Award Management (BFA). IRM agreed that subsequent to the announcement of a policy change, the Proposal Processing Unit will begin to review proposal cover sheets for the presence of the PI/PD, co-PI/PD, and AOR signatures. Nonconformance would result in the rejection of the proposal.

However, IRM plans to make no judgment about the appropriateness of the signatures or whether those signatures were original. We have not yet received a response from BFA to our other recommendations.

TABLE 2:

INVESTIGATIVE STATISTICS

New Referrals	9
Referrals From Previous Reporting Period	7
Prosecutorial Declinations	8
Indictments (including criminal information)	1
Criminal Convictions/Pleas	1
Civil Settlements	1
Administrative Actions	1
Investigative Recoveries*	$96,267

*Investigative Recoveries comprise civil penalties and criminal fines and restitutions as well as specific cost savings for the government. In this reporting period, Investigative Recoveries include government-wide recoveries on 10 cases where NSF was the lead investigative agency.

OVERSIGHT

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

MISCONDUCT IN SCIENCE AND ENGINEERING

NSF's Definition of Misconduct in Science

In the interest of safeguarding the federal government's vital interest in the integrity of research conducted with government support, the President's Office of Science and Technology Policy (OSTP) has undertaken an assessment of the advisability of uniform procedures for handling allegations of "research misconduct" by all federal agencies that fund science. OSTP sought the views of the National Science Foundation—and in particular the NSB—on a proposal that included a uniform definition of "research misconduct." It was recognized by OSTP and NSF that the construct of "research misconduct" on which the OSTP request was based was narrower than NSF's use of the term "misconduct in science." The NSB and NSF's Director reaffirmed the importance for the agency of the broader coverage of misconduct in science.

NSF's definition of misconduct in science proscribes acts that constitute "fabrication, falsification, plagiarism, or other serious deviation from accepted practices in proposing, carrying out, or reporting results from activities funded by NSF." The core of the definition is the "serious deviation" clause: to constitute misconduct in science, an act must *seriously* deviate from accepted practices in the scientific community. Even an alleged act of fabrication, falsification, or

NSF'S DEFINITION OF MISCONDUCT IN SCIENCE AND ENGINEERING

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

plagiarism will not be considered to be misconduct in science unless, in a particular case, the act seriously deviates from the ethical norms of the relevant scientific community.

The "serious deviation" clause provides a legal basis for NSF to take action in all cases of serious breaches of scientific ethics pertaining to NSF-funded activities, including cases that cannot be categorized as fabrication, falsification, or plagiarism. Fabrication, falsification, and plagiarism are merely examples of misconduct; the phrase "serious deviation from accepted practices" provides a coherent context for those and other examples of misconduct in science. The clause relies on the standards of the community. As a former chairman of the NSB, the governing body of NSF, stated:

> The phrase . . . "serious deviation from accepted practices" is a significant concession to the scientific community. It essentially invites that community to establish a form of "common law" governing the behavior of its members in the legitimate use of public funds. It would be well for the scientific community to accept that invitation and work on this broader issue rather than endlessly debating the more limited issue.

We recently published *The Constitutionality of the "Other Serious Deviation from Accepted Practices" Clause* in JURIMETRICS, the American Bar Association's Journal of Law, Science and Technology (Vol. 37, winter 1997, pages 149-166). In this article, we point out that comprehensive conduct standards similar to the serious deviation clause are used by many professions and have been uniformly upheld by the courts. For example, teachers and professors—who constitute the majority of the recipients of NSF grant funds—are generally subject to comprehensive community standards of conduct. Teachers can be dismissed for "conduct unbecoming a teacher . . . or other good cause," while professors are subject to sanction for "failure to maintain standards of sound scholarship and competent teaching, or gross neglect . . . ." When assessing a professor's conduct under the latter standard, a federal appellate court concluded that the "academic community's shared professional standards" supplied fair notice of what conduct was prohibited.

In NSF's definition of misconduct in science, the community standard of ethical practices within the scientific profession gives content to the serious deviation clause under specific circumstances. The serious deviation clause, as defined by the scientific community's ethical professional practices, is no less definite than the community standards imposed by other professions and upheld by courts in numerous cases.

The proposed uniform definition would delete the serious deviation clause from the definition of misconduct in science. We believe the proponents of this proposal do not recognize the importance of—or the firm legal basis for relying upon—the practices of the scientific community to establish what constitutes misconduct in science. We believe this proposal should be reassessed based on these considerations.

At the February 1997 meeting of the NSB, the NSB reviewed the experience of NSF in handling misconduct in science matters. Subsequently, the NSB Chairman and NSF's Director stated NSF's preference to maintain, with possible minor modifications, the definitions and processes that have served the agency well over the past decade. NSF also expressed willingness to continue discussions in this area in the interests of a common federal approach.

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

Plagiarism, Violation of Confidential Merit Review, and Obstruction of Agency Proceedings

A subject who committed a relatively modest instance of plagiarism then rendered his situation far more serious by endeavoring to obstruct our investigation.

We received an allegation that the subject, a university professor, had published a paper that contained material plagiarized from a source document. We referred the allegation to the university for investigation. The university's investigation committee unanimously concluded that the subject had knowingly plagiarized from the source document. We found the university's conclusion to be amply supported by a preponderance of the evidence.

After evaluating the evidence adduced by the university as well as evidence we obtained, we sent the subject a draft investigation report recommending that the subject be found to have committed misconduct in science. Shortly thereafter, the subject presented us with new evidence that he said proved that he had written the text at issue before he obtained the source document. If the evidence were genuine, it would indeed have proven the subject to be innocent. However, we investigated and determined that the new evidence provided by the subject had been faked. The subject ultimately admitted that the evidence was fake, but he claimed that an employee faked it without his knowledge.

Considering all of the evidence, we concluded that the subject was responsible for the employee's preparation of the fake evidence and knew that the new evidence was fake when he submitted it and vouched for its authenticity.

In assessing the subject's state of mind as well as the appropriate NSF action, we considered certain prior acts by the subject. We determined that the subject's prior acts supported the conclusion that he knowingly obstructed the investigation in our case and underscored the need for strong action by NSF. We concluded that the subject's pattern of conduct demonstrated that he lacked the "present responsibility" required for those with whom NSF does business. We recommended that the Deputy Director act decisively to protect federal funds by terminating the subject's current NSF award and debarring him government-wide for 3 years. We also recommended that the Deputy Director work with the university to minimize the effect of these actions on the subject's graduate students and postdoctoral research associates. The Deputy Director is reviewing our recommendations.

Programmer Falsifies Data

During a university misconduct inquiry, a computer programmer working on an NSF-sponsored project admitted that he had falsified data. Confronted with strong evidence of his misconduct, he confessed that he had designed programs he wrote to alter experimental results and make the results confirm hypotheses that researchers on the project sought to test.

The programmer skillfully hid his misconduct. He wrote and distributed many error free programs for examination and use by members of the research group. At the same time, he falsified data by altering the system software that was part of the routine functioning of the research group's computers. It would have been highly unusual for researchers on the project to examine the system software for errors. By falsifying the data in this way, the programmer expected to prevent the project's researchers from detecting his misconduct.

When the programmer confessed, he took full and sole responsibility for his actions and expressed regret about what he had done. He explained that his falsifications were prompted by a long-standing psychiatric disorder that had caused him to form an irrational commitment to proving one of the research group's hypotheses.

Some researchers had previously raised suspicions about numerous, uncharacteristic errors in the programmer's work. Their suspicions led to an earlier misconduct inquiry that exonerated the programmer. During that inquiry, the programmer lied convincingly to investigators and continued to write programs that falsified data.

After the programmer's confession, the university, acting in accordance with its misconduct procedures, found that the programmer had committed misconduct and terminated his employment. The university then investigated further to verify that the programmer had confessed to the full extent of his falsifications and that he alone was responsible for the misconduct. The PIs and their research group engaged in a series of replication studies to assess the extent of the programmer's falsifications. They sought to determine whether the scientific findings of studies in which the programmer participated were correct. The university appointed a faculty member unaffiliated with the project to monitor the

TABLE 3:
MISCONDUCT CASE ACTIVITY

	FY 1996 Last Half	FY 1997 First Half
Active Cases From Prior Period	68	59
Received During Period	25	22
Closed Out During Period	34	23
In-Process at End of Period	59	58
Cases Forwarded to the Office of the Director During Period	2	2
Cases Held in the Office of the Director More Than 6 Months	0	2*

* These cases are described in Semiannual Report Number 15, pages 37 through 41.

group's efforts. The monitor concluded that the programmer's confession was generally accurate, though not reliably precise in its details.

From the evidence the university sent us, we concluded that the programmer acted willfully and that his carefully planned deceptions indicated that he knew that he was doing wrong. As an experienced programmer with a strong interest in the substance of the research, he should have been well aware of how offensive data falsification is to the scientific community's ethical standards.

We concluded that this was an unusually serious case of misconduct. The programmer's actions undermined the main purpose for which NSF funds research—to advance scientific knowledge. The programmer's falsifications did not merely alter a few data points or strengthen the case for a hypothesis that was already well supported with genuine data. His falsifications were designed to confirm a previously untested scientific hypothesis. They prompted the research group to draw significant scientific conclusions that the group included in its progress report to NSF and presented at a scientific conference. The misconduct substantially delayed the progress of the research and involved several researchers in months of effort to replicate the group's findings.

We recommended that NSF's Deputy Director find that the programmer committed misconduct in science and seek to enter into a voluntary exclusion agreement with the programmer whereby the programmer excludes himself from employment in federally funded projects for a minimum of 3 years. We recommended that, for 2 years after this period, the programmer agree, before accepting employment on a federally sponsored project, to inform the head of the project and the federal official responsible for it of NSF's misconduct finding and the circumstances surrounding it. We believe this information, by alerting the persons responsible for federal projects to the risks involved in employing the programmer, would enable them to protect the federal interest in preventing misconduct.

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

In this section, we discuss seven closed cases that did not result in recommendations for action by the Office of Director, but that nevertheless highlight important issues. The first four case descriptions present our resolution of allegations resulting from problematic collaborative relationships between colleagues or between mentors and students. The last three descriptions present our inquiries into cases that raised concerns about NSF's management of particular proposals or awards.

University Thoughtfully Handles Alleged Obstruction of Research

A PI (the complainant) complained to NSF that a former collaborator (the subject) had "overtly and deliberately" attempted to obstruct the PI's NSF-supported research.

The complainant related two incidents of alleged obstruction, but our inquiry determined that only one of the incidents had sufficient substance to warrant an investigation.

In this incident, the subject allegedly promised the complainant access to a piece of equipment that was necessary for his research; encouraged him, in light of this promise, to use his equipment funds for other project-related expenses; and then unreasonably denied him access to the promised equipment. Because the projects directed by the subject and the complainant shared facilities and equipment at a remote field research site in a foreign country, it was practically impossible for the complainant's project to obtain suitable substitute equipment in a timely fashion.

We referred this allegation to the subject's university and identified for it those questions that we knew an investigation would have to answer to be satisfactory for purposes of NSF action. The committee weighed contradictory evidence and found that the subject had permitted the complainant access to easily reparable equipment and had made him aware of how this equipment could be repaired. It further found that the subject had reason to fear that researchers on the complainant's project might be careless about the needs of the subject's project and might misuse the subject's equipment. The committee decided that the subject's primary responsibilities were to fulfill her research plan and ensure the safety of her employees and equipment.

It concluded that, in a difficult situation, the subject had prudently balanced these responsibilities with her responsibility to cooperate with another scientist. The university concluded that the subject had not committed misconduct, and we accepted its conclusion.

In this case, the investigating committee applied the scientific community's ethical standards governing responsibilities to colleagues in a thoughtful way to an unusual situation. It conducted its investigation in light of our guidance about the issues that an investigation of this case would need to address to be adequate for NSF purposes. The committee's report is evidence that the partnership between NSF and awardee institutions can make self-regulation by representatives of the scientific community work well.

No Plagiarism by Ex-Collaborator

The complainant notified us of allegations against a scientist who was also a former collaborator (the subject). The complainant alleged that the subject had denied coworkers of authorship credit and submitted proposals to NSF and the National Institutes of Health that contained misrepresentations and plagiarism (including intellectual theft). The complainant also alleged that the university administrators retaliated against him because he made his charges against the subject public.

After discontinuing her collaboration with the complainant, the subject submitted proposals without naming him as a co-PI. The complainant alleged that the subject's actions contributed to the university's subsequent decision to deny him tenure.

A university committee convened to examine his tenure review and his allegations against the subject. It found no evidence to support his allegations that he was unfairly denied tenure or that the subject had committed misconduct in science.

The basis for the complainant's allegations of misrepresentation, falsification, and plagiarism was that data and methodology developed through the subject's and complainant's collaborative effort were jointly owned and could not subsequently be used independently by individual members of the collaborative team. As discussed in Semiannual Report Number 10 (pages 27 through 30), we recognize that the results of collaborative projects can, with the appropriate citation, be used subsequently by all collaborators, either together or individually. In this case, after the complainant's and subject's collaborative relationship ceased, the subject continued to use their joint data and appropriately referenced the source documents. We concluded that the subject's actions were not deviations from accepted practice and would not be considered misconduct in science.

Citations for Unpublished Information

An NSF program director received an unusual proposal review from the complainant and, concerned about some of the comments in it, brought it to us. The review alleged that the PI of the proposal inappropriately used the unpublished results and methodologies of another researcher. The proposal contained a number of citations referencing "personal communications" with the researcher.

The researcher told us that the PI had contacted him and expressed interest in his research. The PI allegedly informed the researcher that he was interested in a research area different from the researcher's and that the researcher's techniques and material could be useful in the PI's research. The researcher gave the PI his material, unpublished manuscripts, and his graduate student's thesis chapter. The researcher did not stipulate conditions on the use of this information.

The PI said that before he submitted his proposal to NSF, the researcher told him that the manuscripts and thesis chapter had not been published. According to the PI, they agreed that the best way to cite the information was as "personal communications."

We concluded that, because the researcher gave the PI research material, unpublished manuscripts, and a chapter from a graduate student's thesis without conditions on their use, and the PI carefully referenced the information he obtained from the researcher in his proposal, his actions did not constitute a serious deviation from accepted practice and would not be characterized as misconduct in science. We note that if researchers concerned about the future use of sensitive information are asked to share material and unpublished results by a potential collaborator, they should provide a letter indicating what conditions, if any, apply to the use of unpublished information and research material.

A Poorly Functioning Faculty-Graduate Student Collaboration

We received allegations of misconduct in science against a faculty member at a western university. Allegedly, the faculty member misrepresented the research effort of his former graduate student when he listed himself as first author and the student as second author on a publication that was an edited version of the student's master's thesis. The student was unaware of the publication until after it was published, and the thesis was not cited.

The student said that the faculty member was never satisfied with the thesis drafts he prepared. The student eventually furnished the faculty member with a finished thesis copy and left the institution without providing a forwarding address. The faculty member explained that, although the publication contained text copied from the student's thesis, it also contained some of his own work. He did not cite the thesis because he did not view theses as valid scientific publications; they were not readily available to other scientists and they did not go through the accepted scientific review process. He explained that he

planned the research project, “wrote” most of the thesis, submitted the paper for publication, and did not have any way to contact the student during the publication’s preparation.

We sought the advice of an expert in the subject’s field of science who concluded that “once stripped of the ill will of the student and the arrogance of the advisor,” the matter was not serious. We determined that the student had a responsibility to maintain professional contact with the faculty member. At the same time, the faculty member had the responsibility to notify each named author about a manuscript to be published and to afford each of the coauthors, even a student, the opportunity to participate in the production of the manuscript, including deciding whether documents, such as theses, should be cited. We concluded that the faculty member deviated from accepted practice by failing to cite the student's thesis, but that his action was not a serious deviation and therefore it did not rise to the level of misconduct in science. We suggested that the faculty member consider submitting an appropriate citation correction to the journal editor.

Effective communication in a student-faculty mentoring relationship is important for success. In this case, both the student and the faculty member failed to maintain effective communication, which resulted in troublesome misunderstandings between them.

Alleged Misrepresentations in a Progress Report

We received a letter alleging that two administrators acted in bad faith when they accepted an NSF continuing grant that included the use of laboratory facilities that they knew would be unavailable to the PIs and that the administrators coerced the project’s PIs into submitting an NSF progress report that hid this fact. We received the allegation after the first year's progress report had been submitted to NSF.

Although the PIs’ proposal plans included the use of laboratory equipment, they also knew that there would be times when the equipment would (temporarily) not be available to undergraduate students and made allowances for these instances. During the first year, the administrators informed the faculty that the laboratory equipment used to acquire data would be

unavailable to undergraduate students. In the first year's progress report, the PIs wrote that, although it was no longer possible to use the laboratory facilities at the university, this was not a problem because most of the students' critical thinking would involve the analysis, not the acquisition, of data. The PIs' report disclosed that they carefully considered their options and concluded that the original intent of the proposal could still be completed. Thus, NSF's program manager was made fully aware that they no longer had access to the facilities, including the original equipment, and how that would influence their NSF-funded educational activities. The program manager concluded that the loss of the laboratory facilities was not detrimental to the completion of the project and continued to fund the project.

Because the PIs wrote in their progress report that the laboratory was no longer available to them, we concluded that there was no substance to the allegation that they hid this information from NSF. We did not determine whether the PIs had been pressured by their administrators, but concluded that the PIs, dealing with whatever pressure their administrators may have put on them, upheld their partnership with NSF by providing an accurate progress report.

TABLE 4:
ASSURANCES AND CERTIFICATIONS RECEIVED*

Number of Cases Requiring Assurances at End of Period	5
Number of Cases Requiring Certifications at End of Period	7
Assurances Received During this Period	1
Certifications Received During this Period	3

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

Program Officer Creates Appearance of Impropriety

Two scientists (the complainants) who had submitted unrelated declined proposals to the same NSF program complained to an NSF division director that one of his program officers had improperly handled their proposals. The complainants were concerned that the program officer may have divulged confidential information about their proposed work and improperly suggested to scientists at other institutions that those institutions perform the work the complainants had proposed to NSF. In addition, the complainants alleged that the division had an unarticulated policy that precluded funding proposals such as theirs and that their proposals had not received a fair review. The complainants chose not to ask NSF to reconsider their proposals.

We learned that the program officer (PO) did not divulge confidential information or improperly suggest that one scientist misappropriate another's ideas. However, we concluded that the program officer used poor judgment in two instances. In each instance, the PO made remarks that could be, and were, taken by members of the PO's research community to mean that the PO was suggesting that one scientist perform work for which another scientist was already seeking NSF support. To make such a suggestion would have been a serious breach of the confidentiality with which NSF promises to review proposals and a misappropriation of the ideas in a confidentially submitted proposal.

Although we are convinced that the PO's actions were well motivated, we believe the PO was insufficiently attuned in these instances to the detrimental appearances that well-meaning actions can create. We recommended that the division director send the PO a confidential written message expressing disapproval of the PO's actions, and the division director accepted our recommendation.

This case presented a mixture of possible serious ethical improprieties and alleged poor program management by a program officer. We addressed the possible improprieties in our inquiry. At the same time, insofar as this complaint revealed deficiencies in how well the division articulated and implemented its policies, we treated these as matters best resolved by the division director and other responsible managers in his directorate. This case illustrates some pitfalls that well intentioned program officers can encounter and the need for them to be aware of the appearance that their actions can create.

Possible Reviewer Conflict of Interests

It came to our attention that an *ad hoc* reviewer submitted a proposal to NSF shortly before he received two proposals from NSF with requests for his reviews. The reviewer's proposal disclosed that the PIs on both proposals were his research collaborators; the PIs' proposals each contained a citation to a paper coauthored with the reviewer. NSF's Proposal Evaluation Form (NSF Form 1) instructs reviewers to disclose any affiliation that might be considered a conflict of interests. In the absence of such disclosure, NSF assumes that the reviewer has no conflicting affiliations. NSF considers collaborative relationships existing within 48 months preceding a requested review to be potentially biasing. Program officers told us that they have disqualified reviewers because of existing or past collaborative relationships. The reviewer did not contact NSF to discuss any possible conflict of interests that he might have with the two PIs after he received their proposals for review.

The reviewer told us that he knew both PIs, but he had no current collaborative relationship with them. He characterized his prior collaboration with them as "limited" and said he had disclosed it in his proposal because, even though the research for the paper was conducted in 1990-1991, the paper was finally published in 1992 (less than 48 months before he submitted his proposal). He said that he did not disclose his past collaborative relationship with the PIs to the NSF program officer along with his review because he did not feel his past affiliation created a conflict of interests, and he felt he could be objective in his review.

It is doubtful that NSF would have considered the relationship described by the reviewer as disqualifying or limiting, and knowledge of it did not influence the program's funding decisions. However, for the merit review process to work as fairly and objectively as possible, it is NSF, not the reviewer, that must determine whether a reviewer's collaborative relationships disqualify or limit any review activities. We told the reviewer that he should have disclosed this relationship to NSF before he submitted his reviews or, at the latest, along with the reviews, and instructed him to disclose relevant collaborative relationships in the future.

INSPECTIONS

Our office conducts external and internal inspections. External inspections are on-site reviews at organizations that receive NSF funding. Internal inspections review NSF's administrative units.

Inspections are designed to highlight what works well and identify problems or deficiencies so that managers at NSF and NSF-funded organizations can improve their operations and better achieve research and education goals. Inspections are conducted by multidisciplinary review teams that may include scientists, engineers, auditors, computer specialists, investigators, lawyers, and management/program analysts.

EXTERNAL INSPECTIONS

We designed our external inspections program to improve our understanding of NSF's grantee activities by integrating financial, administrative, and program analyses in a single review. We view external inspections as an effective approach because they allow us to determine whether NSF's program goals are being achieved as well as review the financial and administrative management of NSF awards. Inspection teams look for early indications of financial, administrative, or compliance problems so they can be addressed before they become so serious that their resolution requires an audit or investigation.

During this reporting period, we conducted an external inspection at a large natural history museum in the northeast.

INSPECTION AT A MUSEUM IN THE NORTHEAST

This inspection was conducted at a museum that has many exhibits as well as programs in basic research and informal science education. We reviewed eight NSF grants. NSF's Directorate for Geosciences awarded three grants for basic research and one grant for equipment. NSF's Directorate for Biological Sciences awarded one grant for basic research and one grant for Research Experiences for Undergraduates (REU). NSF's Directorate for Education and Human Resources awarded one grant for public education about biodiversity, and NSF's Office of Science and Technology Infrastructure awarded one grant for the renovation of research laboratories.

Financial Controls

The museum generally complied with NSF's and other federal requirements. NSF is the museum's cognizant federal agency and therefore is responsible for representing the government as a whole in such matters as establishing indirect cost rates and reviewing the adequacy of financial systems. We made recommendations to increase compliance and strengthen internal controls in time and effort reporting and indirect costs.

Time and Effort Reporting. The museum overcharged an award because it did not always adjust salary charges to reflect the work performed by its employees. OMB Circular A-122, *Cost Principles for Non-Profit Organizations*, states that employees' time and effort reports must reflect the employees' actual work. Accordingly, we recommended that the museum ensure that the amount of salaries it charges to awards coincides with the actual time its employees have worked on the awards. The museum agreed with our recommendation and has taken corrective action.

Indirect Costs. The museum did not allocate all of its library's costs to the government in an equitable manner. The museum allocated nearly 100 percent of certain library costs to its research activities instead of allocating these costs in accordance with its most recent library usage study. From its usage study, the museum determined that 65 percent of the library's users were researchers and 35 percent were public users. Increasing the allocation of library costs to research activities results in the museum recovering more of its library costs from the government through indirect cost charges to awards. OMB Circular A-122 states that "a cost is allocable to a particular cost objective . . . in accordance with the relative benefits received." Therefore, we recommended that, in its next indirect cost proposal, the museum allocate its library costs according to its most recent usage study. We also recommended that NSF's Division of Contracts, Policy, and Oversight (CPO) thoroughly review the museum's next proposal to ensure that its indirect cost allocations are equitable so that CPO can negotiate and approve the most accurate indirect cost rate. NSF's CPO stated that

it will reevaluate the museum's indirect cost rate methodology. The museum also stated that it would be receptive to refinements in its allocation methods.

In addition, the museum included unallowable depreciation and lobbying costs in the calculation of its indirect cost rate. We recommended that the museum review its indirect costs and ensure that it has properly excluded such costs. The museum agreed with our recommendation and has reviewed its indirect costs to exclude unallowable costs.

The museum also noted that all of the indirect costs to which we took exception would have been totally offset by two museum misclassifications. However, the "offsets" to which the museum refers do not share a one-to-one relationship with the costs to which we took exception. The museum's misclassifications would reduce the costs in question by less than 7 percent.

Misconduct in Science

We were concerned about the museum's policy for handling allegations of misconduct in science because of several deficiencies. We recommended that the museum specify in its policy the purpose of an inquiry and how it is distinguished from an investigation. We also recommended that the museum's policy specify that NSF be notified if an allegation of misconduct in science is determined to be substantive and to require investigation.

Finally, we noted that the museum, which is not a degree-granting institution, had formal affiliations with universities that enabled its scientists to teach courses and advise graduate students for academic credit at the museum. The lack of student coverage under the policy created a unique situation for the museum (see essay on page 78). The formal arrangements with universities for students who studied at the museum included the acceptance and enrollment as well as shared financial support for participating students by both the museum and the university involved. Consequently, the assumption would be

that a student alleged to have committed misconduct in science at the museum would be covered by the affiliated university's misconduct policies. This created uncertainty over what procedures would be used for a student who is alleged to have committed misconduct in science at the museum and raised concerns about confidentiality and fairness for the subject of an allegation. All the PIs we interviewed were familiar with the museum's policy regarding allegations of misconduct in science involving museum scientists, but we found that there was little consistency regarding PIs' responses about what to do if they became aware of alleged misconduct in science against a student. Therefore, we recommended that the museum revise its policy to include students.

The museum agreed with all our recommendations and also indicated that it plans to share its revised misconduct in science policy with its affiliated universities and to encourage discussion about how the universities' policies relate to the museum's.

PI Financial Disclosure Policy

The museum was not in compliance with *NSF's Investigator Financial Disclosure Policy*. The museum's conflict-of-interests policy did not become effective until November 13, 1996, and disclosures had not been made by PIs on 13 proposals submitted to NSF since October 1, 1995, the effective date of NSF's Policy. Two of those proposals were funded.

We informed NSF officials in CPO about this finding. NSF suspended the two awards whose proposals were submitted after October 1, 1995, until NSF received updated proposal cover sheets, endorsed by the appropriate institutional official, certifying, among other things, that all financial disclosures have been made and that the museum will satisfactorily address all identified conflicts of interests before it expends NSF funds under any resulting awards. NSF also requested that the museum properly endorse cover sheets for the pending proposals submitted after October 1, 1995, and return them to NSF within a specified deadline. NSF officials informed us that the museum submitted all of the

necessary cover sheets, and that NSF lifted the suspensions on both of the awards in question. The museum stated in its written response that it had a long-standing, conflict-of-interests policy that it believes to be more stringent than NSF's *Investigator Financial Disclosure Policy*. This policy was not mentioned before, or during, our on-site review. At the exit briefing, we informed museum officials that we had concluded the museum lacked an adequate financial disclosure policy for the awards reviewed. In view of the museum's written response, we examined this newly offered conflict-of-interests policy and found it inadequate to meet the requirements of NSF's *Investigator Financial Disclosure Policy*.

We considered this noncompliance to be serious because the museum's AOR wrongly certified on 13 proposals to NSF that the museum had a written and enforced conflict-of-interests policy and that, to the best of his knowledge, disclosures had been made; NSF funds had already been awarded on 2 of the 13 proposals; and the museum was considerably delinquent in implementing a conflict-of-interests policy.

NSF's Division of Earth Sciences "Hold-Over" Practice

We learned that NSF's Division of Earth Sciences (EAR) permits program directors to "hold over" some unsuccessful proposals for review in EAR's next proposal competition. "Hold over" proposals receive no additional *ad hoc* reviews and are declined if they do not compete successfully 6 months later, on their second try. We were concerned that EAR lacked internal procedures for "holding over" proposals and that EAR's practice could lead to an appearance of favoritism. We recommended that EAR describe the practice in its Program Announcement. NSF's Assistant Director for Geosciences responded that EAR's "hold over" policy was referenced in a "Dear Colleague" letter, dated August 15, 1994, which is also available on-line through NSF's Science and Technology Information System. The Assistant Director stated that the Division chose not to include an explanation of "holding over" proposals in its Program Announcement because it might encourage PIs to pressure EAR program directors to "hold over" their proposals. We also recommended that NSF's EAR

develop a set of internal procedures for program directors to follow when using this "hold over" practice. The Assistant Director responded that the practice is a useful management tool, that there is no indication of misuse, and that additional policy overlays are not required. He noted that the Advisory Committee for Geosciences recently approved the practice and said he would request that future Committees of Visitors monitor it.

Other Recommendations

- We recommended that the museum either revise its collections and records retention policy to address the retention of data and materials that are NSF-supported but not part of the museum's collections, or develop a separate policy to address this issue. The museum said it will prepare a grant guide for scientists that will resolve this issue.
- We recommended that the museum institute a regularly scheduled museum-wide safety inspection of all laboratory facilities. The museum said it plans to implement a regularly scheduled museum-wide safety inspection to supplement its existing safety program.

INTERNAL INSPECTIONS

We designed our internal inspections program to help NSF fully implement GPRA. GPRA requires that federal agencies develop strategic plans that include mission statements, outcome-based goals and objectives, descriptions of how goals will be achieved, and a performance plan tied to the strategic plan. Beginning in FY 1999, agencies will be required to prepare annual reports that integrate financial and performance information, and offices of inspector general will be required to review those statements for accuracy. Internal inspections will help us understand how NSF managers at the program and division levels administer their programs and generate the information that NSF will use to measure program performance and results.

Because NSF has not yet identified specific outcome performance measures or the data that will be used to support them, we have devised a review that addresses four broad areas: (1) the adequacy of NSF's financial rules and procedures in ensuring proper use of NSF funds, (2) the efficiency and effectiveness of NSF's internal operations, (3) the level of customer satisfaction with NSF's programs and operations, and (4) the capacity of NSF to make valid claims about program performance and goal achievement. Internal inspections stress the relationships among programmatic, administrative, and financial considerations in the overall administration of NSF's programs.

We conducted our first NSF internal inspection on the Western Europe Program (WEP) of the Division of International Programs (INT) in the Directorate for Social, Behavioral and Economic Sciences (SBE).

THE WESTERN EUROPE PROGRAM

Background

Since NSF's inception in 1950, an integral part of its mission (to promote the progress of U.S. science and engineering) has been to support international science activities. The principal rationale for this function is to provide access for U.S. scientists, engineers, and educators to intellectual resources, unique facilities, and unusual field sites on a worldwide basis.

INT's special functions are to expand and facilitate the international dimension of NSF's mission by promoting and supporting new partnerships between U.S. scientists and engineers and their foreign colleagues. INT supports an array of activities designed for individuals and small groups, and it encourages U.S. organizations and institutions to consider projects aimed at establishing or strengthening relationships with foreign counterparts.

WEP is one of six regional groupings in INT. The Western Europe Region includes 17 countries and several multilateral organizations. WEP is staffed by four NSF employees: a program coordinator, two program managers, and one senior program assistant.

In FY 1996, WEP was allocated $1,573,190 of INT's $17,441,949 budget and processed 200 proposals that resulted in 106 awards. About 90 percent of WEP's funding is distributed through cooperative research projects. Virtually all of the remainder is used to fund workshops and dissertation enhancement awards.

We reviewed seven grants awarded by WEP to support cooperative research between the United States and Austria, the European Union, Germany, Greece, Italy, and Sweden. Three of these awards were split-funded with programs in the divisions of atmospheric science, biology, and chemistry. We also reviewed three declined proposals, two withdrawn proposals, and one inappropriate proposal.

Financial Measures

We reviewed the WEP-funded research and verified that the awards were for activities related to WEP's budgeted goals and objectives. We found that essential award information in the financial accounting system and the award system corresponded to that in the program jackets. We also found that INT complied with the main features of the Federal Managers' Financial Integrity Act. INT had performed an internal control risk assessment and identified internal control responsibilities in the performance plans for key officials.

International Implications Report. NSF's International Implications Report is used to provide answers to questions from the U.S. Department of State and foreign counterparts about trends and fields of interest and to brief NSF's Director on NSF's foreign research involvement. Both INT and WEP program staff members emphasized that the report is the only document that provides in-depth coverage of NSF's international investment.

We found that the utility of the International Implications Report as a financial measure of NSF's international science and engineering activities was minimal. The report does not

- include all awards with international implications,
- accurately reflect the actual dollar amount of international implications of the awards entered into the report,
- accurately record the amount of money budgeted for foreign travel in individual awards, or
- limit data entries to foreign travel that advances the nation's position in international science and engineering.

We recommended that INT work with other NSF components to ensure that the report is complete and accurate. INT agreed to do so.

Western Europe Program Award Dollars by Country or Entity Report. INT could not readily determine which countries or entities within the Western Europe region received WEP funding and how much they received. We recommended that INT develop better mechanisms for readily identifying its awards by country or entity and describing how its total award dollars are divided among different countries or entities.

INT responded that its current mechanisms, though cumbersome, are accurate. It said that it is investigating alternatives that involve modifying some current NSF standard reports.

Internal Operations

WEP's work includes management of the proposal evaluation and award process and staff service as "country desk" officers to NSF's senior management and program officers, OSTP, and other government agencies.

WEP's program officers were articulate and committed spokespersons for their program. We found that stagnation in WEP's budget and uncertainty about INT's organizational home in NSF adversely affected program officers' morale.

Conflicts-of-Interests Training.

In 1992, NSF established a program of annual mandatory conflicts training for all NSF officials at or above the program officer level. OGC was tasked to conduct conflicts briefings, arrange scheduling, notify staff, and monitor compliance with this directive. We found that none of the four INT staff members we sampled attended this mandatory training in 1995.

OGC gives NSF-wide conflicts training sessions periodically throughout the year and, upon request, gives conflicts training to specific offices or divisions. Although OGC notifies staff members in October if they have not yet taken training in that calendar year, it does not follow up with individuals who fail to take the training in a given year, so, essentially, this mandatory training operates on the honor system. We suggested that OGC consult with NSF management to establish some mechanism to help ensure that employees' supervisors are informed when employees fail to attend the mandatory conflicts training.

OGC maintains a database of the names of the individuals who attend the conflicts training. However, this database is not cumulative—each new entry replaces the previous entry, leaving no record of the earlier training. We suggested that OGC consider changing its database to make it cumulative.

We recommended that INT ensure that

- each professional member of its staff completes NSF's annual mandatory conflict-of-interests training and
- records are updated and maintained on staff attendance for at least a 5-year period.

INT agreed that appropriate NSF staff should attend these sessions and that management should ensure that this occurs. Also, OGC implemented our suggestion for a system of cumulative records on completion of mandatory conflict-of-interests training.

Customer Measures

WEP serves a variety of customers. NSF's senior management and program officers, Department of State officials, and science counselors working for foreign embassies are the main customers for WEP's "country desk" activities. Potential program customers include PIs, postdoctoral fellows, and graduate and undergraduate students from all NSF-funded research areas. Consistent with INT policy, WEP focuses on program customers who are just starting a research career and are new to international collaborations. WEP's customer base also includes the institutions that sponsor these individuals. We believe it will be important to have/develop measures of how well WEP serves all categories of its customers.

At the time of our inspection, WEP had no measures of the long-term effect of its awards. Some measures had been considered, but they involved the relatively high costs of longitudinal surveys and were characterized by INT officials as "questionably cost-effective."

To monitor whether it is funding "new" researchers, INT counts the number of PIs, postdoctoral fellows, and graduate students and undergraduate students associated with WEP awards who have not received INT support within the last 5 years. Without further refinement, this is not, in our view, a valid measure of how many PIs are "new" to international S&E collaborations.

We were able to identify two important sources of information on customer satisfaction for WEP programs. One source was the most recent Committee of Visitors Report (December 15, 1994), which covered all INT programs, including WEP. This Committee of Visitors "observed" that all projects assisted U.S. scientists to engage in meritorious international research collaborations and that these collaborations involved large numbers of younger scientists. However, the Committee of Visitors expressed concern about the timeliness with which NSF processed proposals.

Our second source of customer satisfaction information was NSF's Customer Satisfaction Report for Fiscal Year 1996. For FY 1995, NSF established a customer service standard for timeliness in proposal processing. NSF's goal was that, for 95 percent of proposals to the agency, proposal processing divisions should decide whether to recommend funding within 6 months of when NSF received the proposal. According to the Customer Satisfaction Report, in FY 1995 the agency met this goal for 50 percent of its proposals. The report also provided results of a June 1996 survey of university-sponsored research offices. The survey showed that all of the offices favored decisions in 6 months or less. INT officials told us that the division's current response time is approximately 7 months. We reviewed NSF's standard Overage Proposal Report for October 18, 1996, and found that less than 2 percent of the WEP pending proposals were in process for 6 months or longer.

Mission (Goals and Objectives) Measures

We searched for strategic plans relevant to understanding WEP goals and objectives and any corresponding performance measures that had been developed. After we identified suggested performance measures, we looked into their quality as measures. Because NSF's GPRA Strategic Plan has not yet been finalized, the relevance of INT's performance measures to NSF's GPRA objectives remains uncertain.

We were pleased to find that in August 1994, at the request of SBE, INT developed both a strategic plan and a set of performance measures to cover its program and staff functions: *DIVISION OF INTERNATIONAL PROGRAMS STRATEGIC PLAN, 1995-1999* (INT PLAN). Shortly afterwards, NSF reorganized its central planning and assessment functions. INT's plans and proposed measures have remained in abeyance since that time "pending" NSF's decisions on how to establish a management system to comply with GPRA requirements.

The INT PLAN is generally consistent with NSF's most recent (1994) strategic plan, *NSF IN A CHANGING WORLD* (NSF 95-24) and SBE's 1995 strategic plan, *TOWARD SBE 2000*. The INT PLAN suggests possible output and outcome measures corresponding to its seven objectives. Although the INT PLAN was designated as a 5-year plan, there were no benchmarks set for any of the 5 years. We were told that one test run of these measures was made on the Eastern Europe Program.

We reviewed and commented on each of the measures in the INT PLAN. Among our observations was that some of the measures that INT has proposed relate to country support within the Western Europe region. These measures will be problematic if the WEP does not improve its ability to readily generate data on the dollar amounts of NSF awards to individual countries.

In keeping with GPRA, NSF's 1996 draft GPRA Strategic Plan for FYs 1999-2001 attempts to translate the agency's current strategic plan into operational terms. Among the eight NSF objectives listed in this draft, at least five appear to involve INT activities. Many of the measures that NSF is considering using involve an international dimension. In 1997, as NSF finalizes its GPRA planning and performance measures, INT will have to adapt its early efforts to the NSF-wide perspective. To the extent that international activities are part of the NSF-wide GPRA strategic plan and its goals, INT should play a leading role in developing meaningful measures of NSF performance.

EVALUATIONS

This section summarizes reviews we conduct concerning the efficacy of NSF policies and procedures. We summarize recommendations we made to NSF about competition with private companies, describe our review of university policies on handling alleged student misconduct, and report NSF's response to our recommendations about the introduction of non-indigenous organisms into Antarctica. Finally, we describe representational activities by our staff.

NSF Needs to Clarify Non-Competition Policy

In response to a request from the Chairman of the House Committee on Science, we reviewed a number of allegations of violations of NSF Important Notice 91 (IN-91). IN-91, which was approved by the NSB in 1983, states:

> It is contrary to the NSF's intent for grantees to use NSF-supported research instrumentation or facilities to provide services for a fee in direct competition with private companies that provide equivalent services.

IN-91 permits use of NSF-funded equipment and facilities by private industry only under two circumstances: on a collaborative basis with an academic scientist, or when equivalent services are not available commercially. However, because NSF has other less restrictive policies on the appropriate use by industry of NSF-funded equipment and facilities, grantees vary in their policies on industrial use of such equipment. One less restrictive policy was added to NSF's grant conditions in response to our recommendations in Semiannual Report Number 2 (page 16) that NSF take action to make IN-91 enforceable:

> **Competition**. The grantee shall not use equipment acquired with Federal funds to provide services to non-Federal outside organizations for a fee that is less than private companies charge for equivalent services, unless specifically authorized by statute.

NSF also developed different procedures to handle allegations stemming from this policy, as compared to its procedures for handling allegations from IN-91.

We reviewed a number of university facilities about which there had been complaints that equipment or facilities were used to provide services in violation of IN-91. We found that the NSF-funded equipment and facilities that we reviewed fell into two groups: advanced, very expensive instrumentation provided to a multiuser facility for use by a broad segment of the scientific community, or

expensive but conventional equipment provided to an individual investigator or department. We concluded that industrial use of the latter type of equipment was minimal. By contrast, we found significant industrial use of NSF-funded major shared instrumentation and facilities, under circumstances that raise concerns about competition with private companies.

We learned that NSF programs that support major shared instrumentation or facilities often specifically encourage—and sometimes require—commitments for industrial participation. To promote open access to the equipment, some NSF-funded facilities had nominal rates for all users, including those from industry, when the equipment was used to accomplish publishable (rather than confidential proprietary) research. Other facilities had higher rates but still undercut the cost of similar services offered commercially. Industrial usage was not limited to the provision of services that could not be obtained commercially, nor did it depend on collaboration with facility staff. Industrial affiliate programs, in which private companies pay a flat annual fee for access to equipment plus other benefits, also raise concerns because they promote noncollaborative use of the equipment and do not specify the true rates for its use. Although these policies encouraging industrial involvement may be consistent with NSF's core strategy of promoting partnerships among industry and the academic community, they also put private companies at a competitive disadvantage because their customers have the option of using NSF-funded equipment rather than what is available commercially. The inconsistent provisions set out in IN-91, the grant conditions, and the stated or *de facto* policies of NSF's programs send mixed messages regarding the appropriate use of major shared instrumentation funded by NSF. Industrial access to this instrumentation through industrial affiliate programs may also contribute to usage inconsistent with IN-91 and/or the grant conditions.

We recommended that NSF assign responsibility to someone with NSF-wide authority to develop a consistent and enforceable policy regarding the use by the for-profit sector of different types of NSF-funded equipment and facilities and to evaluate and resolve complaints of violations of the policy. NSF's revised policy should also address whether

grantees' industrial affiliate programs that provide access to NSF-funded equipment are consistent with NSF policy. After NSF implements a clear and enforceable policy, appropriate corrective action should be taken so that NSF-funded major shared instrumentation and facilities comply with NSF's revised policy.

When it reported the NSF Authorization Bill for fiscal year 1998 to the full House for consideration, the House Committee on Science expressed its "concern about NSF's enforcement of Important Notice 91" and noted that "[s]till too often, the Committee is receiving complaints of universities in competition with the private sector." The Committee concluded that it "strongly endorses university/private sector collaboration," but "does not desire to see federal resources used to compete against private sector interests."

NSF's Director recently responded to our report. He advised us that he plans to refer the issue of inconsistent policies governing the use of NSF-funded equipment to the National Science Board for its consideration. We recommended that NSF ensure that whatever policy the Board adopts should be its exclusive policy, and the Board should rescind any policies that are inconsistent. The Director's response treats the issue of industrial affiliate programs as an operational issue to be addressed after the Board has resolved the inconsistencies in formal policies. We recommended that the Director evaluate and address this issue before presenting his recommendations to the Board.

Institutions Need to Review Policies for Responding to Allegations of Student Misconduct in Science and Engineering

In our on-site inspections of NSF-grantee institutions, we always review the institution's Misconduct in Science and Engineering Policies and Procedures (MS&E Policies). We review the MS&E Policies, in part, to determine how cases against students who are alleged to have committed misconduct in science in connection with an NSF-supported activity are handled administratively. In more than 75 percent of our published inspection reports that contain a discussion about how such allegations are handled, we describe concerns that range from the absence of, to the lack of clarity about, student coverage in the grantee's MS&E Policy. In addition, our experiences with cases of alleged student misconduct in science that are processed under institutions' student Academic Misconduct Policies have raised concerns about the timely notification of NSF and the lack of information necessary to evaluate an allegation of misconduct in science (see Semiannual Report Number 11, page 31). These concerns prompted us to conduct a policy review on how allegations of student misconduct in science and engineering are handled.

NSF's Misconduct in Science and Engineering regulation (45 CFR part 689) describes an NSF-grantee partnership for oversight of the ethical practices associated with NSF-supported activities. The partnership places the primary responsibility for preventing and detecting misconduct in science associated with NSF-supported activities with the grantee. As NSF support for science and engineering educational activities increases, a broader group of undergraduate and graduate students is becoming involved. Consequently, for an effective NSF-grantee partnership, policies and procedures at institutions that address misconduct in science issues need to clearly include any student involved in an NSF-supported activity. We reviewed the existing policies and procedures at 11 large, publicly funded institutions to learn how cases involving students alleged to have committed misconduct in science would be handled.

Misconduct in Science and Engineering Policies and Procedures. MS&E Policies apply to faculty members and frequently to other staff members at the institutions. Eight of the institutions' MS&E Policies also include "students." Of the remaining three MS&E Policies, one refers only to graduate students and states that they are covered by the student Academic Misconduct Policies; one excludes all students and provides that allegations against them be handled through Academic Misconduct Policies; and one provides insufficient information to judge whether students are included. Five of the eight MS&E Policies that include "students" define misconduct in science to cover research and non-research activities.

Academic Misconduct Policies. In contrast to MS&E Policies, Academic Misconduct Policies are exclusively for students. Also, the Academic Misconduct Policies usually define misconduct in broad terms. For example, the Academic Misconduct Policy notes that "The description of prohibited conduct set forth herein shall be interpreted broadly and is not designed to define misconduct in exhaustive terms."

Student Coverage Under MS&E Policies and Academic Misconduct Policies. Three of the 11 MS&E Policies refer to the Academic Misconduct Policies to handle alleged misconduct in science by students. The remaining institutions' MS&E Policies and Academic Misconduct Policies are ambiguous about which policy applies to alleged student misconduct for certain allegations where both policies cover students. For example, all the Academic Misconduct Policies and MS&E Policies in this study list plagiarism as an act of misconduct. In practice, an allegation of plagiarism against a student involved in an NSF-supported activity could be pursued under either Policy. In a few instances, this jurisdictional ambiguity is recognized by the institution, and the MS&E Policies include language that directs all student conduct concerns to the official responsible for administering the Academic Misconduct Policies. A comparable statement directing student conduct concerns to the official responsible for overseeing the MS&E Policies when federal support is involved does not appear in any of the Academic Misconduct Policies. At all 11 institutions, separate officials are responsible for

administering the 2 Policies. Because there is no complete "information loop" between the designated officials overseeing the 2 separate Policies at any of the 11 institutions, a misconduct in science allegation against a student that advances to an investigation under the Academic Misconduct Policy and that involves an NSF-supported activity would not necessarily be relayed to the MS&E Policy official.

NSF does not mandate any specific procedure or reporting method for institutions' oversight responsibilities. However, it is important that institutions' Policies include all students who receive or participate in NSF-supported activities and establish a process to notify NSF of any inquiry that leads to an investigation. None of the 11 Academic Misconduct Policies includes a provision for notification of NSF.

Institutions should review their existing MS&E Policies and Academic Misconduct Polices to ensure that, whatever Policy is used, an appropriate procedure is in place to notify NSF of any misconduct in science allegation against a student involved in any NSF-supported activity that advances to the investigation stage. Such a review would help ensure that each institution is upholding its end of the partnership with NSF in its oversight responsibilities of ethical issues.

Concerns About the Possible Introduction of Non-Indigenous Organisms in the Antarctic

The Antarctic Conservation Act prohibits U. S. citizens from introducing "any animal or plant that is not indigenous to Antarctica" into Antarctica "unless authorized by regulation . . . or a permit" issued by NSF. The question of whether a particular strain of *Escherichia coli* was not indigenous to Antarctica and therefore required a permit for its introduction arose during the 1994-1995 season. NSF determined that these bacteria were indigenous to the Antarctic, and that no permits were necessary for bringing *E. coli* or genetic variants of this species to the Antarctic. We were concerned that NSF's decision to classify *E. coli*, and all of its genetic variants, as indigenous to the Antarctic was more broad than was appropriate.

We recommended that NSF adopt a policy that any laboratory culture of microorganisms is presumptively non-indigenous to the Antarctic. We also recommended that NSF program officers ensure that any proposed on-site recombinant DNA (rDNA) experiments receive prior approval, if required, from the grantee institution's rDNA biosafety committee. In response to our recommendations, NSF agreed "to reinstate the requirement that all laboratory cultures of microorganisms proposed for importation into Antarctica, regardless of their origin, be listed on a permit application . . . beginning with the 1997/98 season." NSF is considering our recommendation concerning the prior approval of on-site rDNA experiments by a grantee institution's rDNA biosafety committee.

Staff Activities

An Oversight scientist participated in and spoke at a PRACTICUM sponsored by the American Association for the Advancement of Science on Responding to Allegations of Research Misconduct: Inquiry and Investigation held in San Diego, California, from January 26 through 28, 1997; another presented a paper in a session on The Report of the Commission on Research Integrity at the annual meeting of the Association for Practical and Professional Ethics, from March 6 through 8, 1997; and a third chaired a session on Issues in Research Ethics at the same Association for Practical Professional Ethics meeting.

Audit Reports Issued With Recommendations for Better Use of Funds

	Dollar Value
A. For which no management decision has been made by the commencement of the reporting period	37,385,100
B. Recommendations that were issued during the reporting period (these were issued in ten reports)	64,020,102
Subtotal of A+B	101,405,202
C. For which a management decision was made during the reporting period	36,998,657
(i) dollar value of recommendations that were agreed to by management	
based on proposed management action	12,202,565
based on proposed legislative action	0
(ii) dollar value of recommendations that were not agreed to by management	24,796,092
D. For which no management decision had been made by the end of the reporting period	64,406,545
For which no management decision was made within 6 months of issuance	1,466,900

Audit Reports Issued With Questioned Costs

	Number	Questioned Costs	Unsupported Costs
A. For which no management decision has been made by the commencement of the reporting period	73	9,611,016	4,099,345
B. That were issued during the reporting period	25	2,779,937	1,861,527
C. Adjustments to questioned costs resulting from resolution activities	0	0	0
Subtotal of A+B+C	98	12,390,953	5,960,872
D. For which a management decision was made during the reporting period	59	5,392,592	3,392,651
(i) dollar value of disallowed costs	N/A	1,043,405	N/A
(ii) dollar value of costs not disallowed	N/A	4,349,187	N/A
E. For which no management decision had been made by the end of the reporting period	39	6,998,361	2,568,221
For which no management decision was made within 6 months of issuance	17	4,339,500	1,384,994

Additional Performance Measures

As required by the Inspector General Act of 1978, we provide tables in each Semi-annual Report to the Congress that give statistical information on work conducted by our audit and investigation units.

Tables that provide statistics concerning these required performance measures are on pages 44, 82, and 83. GAO and OMB suggested that Offices of Inspector General develop additional performance measures that provide information about their activities. As a result, we developed two additional performance measures to provide additional insights about the work of our office. The two additional measures are "Systemic Recommendations" and "Cost Sharing Shortfalls."

COST-SHARING SHORTFALLS—NSF seeks to leverage its resources by acting as a catalyst, promoting partnerships, and, in some cases, obligating grantees to contribute substantial nonfederal resources to a project. When NSF award documents require substantial cost sharing, we seek to determine whether grantees are in fact providing promised resources from nonfederal sources.

We divide cost-sharing shortfalls into two categories. Shortfalls occurring during the life of a project indicate that the grantee may not be able to provide all promised resources from nonfederal sources before completing the project. Shortfalls that remain when a project is complete demonstrate that a grantee has in fact not met cost-sharing obligations; these findings result in formal questioned costs. The table on page 85 provides statistical information about shortfalls occurring during the course of a project and at the completion of the project.

Auditors who conduct financial statement audits at grantee organizations may identify a general deficiency concerning cost sharing (which we classify as a "compliance finding") but often do not identify the amount of a cost-sharing shortfall (which we classify as a "monetary finding") because it is not material in the context of the organization's overall financial statement presentation. We track both monetary and compliance findings that involve cost sharing.

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

We routinely track these systemic recommendations and report to NSF's Director and Deputy Director quarterly about the status of our recommendations. The table on page 86 provides statistical information about the status of all systemic recommendations that involve NSF's internal operations.

Audit Reports Involving Cost-Sharing Shortfalls

	Number of Reports	Cost Sharing Promised	At Risk of Cost-Sharing Shortfall/ (Ongoing Project)	Cost-Sharing Shortfalls at Completion of the Project*
A. For which no management decision has been made by the beginning of the reporting period				
1. Reports with monetary findings	N/A	N/A	N/A	N/A
2. Reports with compliance findings	N/A	N/A	N/A	N/A
B. That were issued during the reporting period				
1. Reports with monetary findings	9	29,206,405	15,691,416	273,496
2. Reports with compliance findings	9	N/A	N/A	N/A
Total of Reports With Cost-Sharing Findings (A1+A2+B1+B2)	18	29,206,405	15,691,416	273,496
C. For which a management decision was made during the reporting period				
1. Dollar value of cost-sharing shortfall that grantee agrees to provide	0	0	0	0
2. Dollar value of cost-sharing shortfall that management waives	1	1,882,061	0	51,774
3. Compliance recommendations with which management agreed	0	N/A	N/A	N/A
4. Compliance recommendation with which management disagreed	0	N/A	N/A	N/A
D. For which no management decision has been made by the end of the reporting period				
1. Reports with monetary findings	8	27,324,344	15,691,416	221,722
2. Reports with compliance findings	9	N/A	N/A	N/A

- These findings result in questioned costs and are also identified in our table on questioned costs on page 83.

Status of Systemic Recommendations That Involve Internal NSF Management

Open Recommendations

Recommendations Open at the Beginning of the Reporting Period	47
New Recommendations Made During Reporting Period	35
Total Recommendations to be Addressed	82

Management Resolution[1] of Recommendations

Recommendations Awaiting Management Resolution	8
Recommendations Resolved by Management	74
Management Agrees to Take Reasonable Action	74
Management Decides No Action is Required	0

Final Action[2] on OIG Recommendations

Final Action Completed	37
Recommendations Open at End of Period	45

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

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

Aging of Open Recommendations

Awaiting Management Resolution:

0 through 6 Months	8
7 through 12 Months	0
more than 12 Months	0

Awaiting Final Action After Resolution

0 through 6 Months	21
7 through 12 Months	5
13 through 18 Months	7
19 through 24 Months	1
more than 24 Months	3

Recommendations Where Management Decides No Action Is Required

None to report during this period.

Recommendations Awaiting Management Resolution for More Than 12 Months

None to report during this period.

Recommendations Awaiting Final Action for More Than 24 Months

Report Title	Date	Issue
Review of NSFNET	03/23/93	Audit of Infrastructure Account
Peer Review Process (2 recommendations)	09/29/93	Issue Formal Guidance on Confidentiality

List of Reports

NSF and CPA Performed Reviews

Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds
97-1001	School District	108,398	51,774	0
97-1002	Museum	128,108	3,176	0
97-1003	Museum	66,994	66,652	0
97-1004	School District	130,996	112,777	0
97-1005	Educational Nonprofit	92,433	65,768	0
97-1006	Educational For Profit	4,904	4,904	0
97-1007	School District	333,753	322,089	0
97-1008	School District	5,695	2,343	0
97-1009	School District	25,785	718	0
97-1010	University	451,147	222,080	0
97-1012	Non Profit Society	341,057	302,495	0
97-2101	Review of Process Used to Purchase PCs at NSF	0	0	0
97-2102	Audit of NSF Statements	0	0	0
97-2103	Review of Infrastructure Awards	109,209	0	0
97-2104	Review of Astronomy Observatories	0	0	2,195,715
97-2105	Review of FFRDC	641,129	0	0
97-2106	Review of Astronomy Laboratory	0	0	1,172,465
97-2107	Review of Funding for Development of the INTERNET	0	0	60,000,000

Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds
97-2108	Review of Electricity Costs	0	0	2,200,000
97-2109	Review of Travel Expenses	0	0	300,000
97-2110	Management Letter on NSF Statements	0	0	0
97-6001	For Profit Contractor	2,304	0	0
97-6002	Public Television Network	0	0	0
97-6003	School District	11,944	0	0
97-6004	Non Profit Educational Association	0	0	0
97-6005	Small Business Grantee	0	0	172,002
97-6006	Small Business Grantee	0	0	17,700
97-6007	Small Business Grantee	0	0	25,683
97-6008	Small Business Grantee	0	0	11,550
97-6009	Small Business Grantee	0	0	120,702
97-6010	National Laboratory	148,398	0	0
97-6011	Educational Council	54,423	0	0
97-6012	Educational Service Center	0	0	0
97-6013	School District	412	0	0

NSF-Cognizant Reports

Number	Subject	Questioned Costs	Unsupported Costs
97-4001	Science & Technology Foundation	0	0
97-4002	Film Network	0	0
97-4003	Institute for Public Policy Research	0	0
97-4004	Educational Council	0	0
97-4005	Association	0	0
97-4006	Botanical Garden	0	0
97-4007	Botanical Garden	0	0
97-4008	Aquarium Institute	0	0
97-4009	Botanical Garden	751	751
97-4010	Museum	0	0
97-4011	Scientific Research Society	0	0
97-4012	Educational Council	0	0
97-4013	Educational Association	0	0
97-4014	Institute	0	0
97-4015	Non Profit Education Center	0	0
97-4016	Science Center	0	0
97-4017	Research Center	0	0
97-4018	Educational Project	0	0
97-4019	Educational Project	0	0
97-4020	Museum Association	0	0

Number	Subject	Questioned Costs	Unsupported Costs
97-4021	Science Academy	0	0
97-4022	Non Profit Organization	2,484	0
97-4023	Scientific Society	1,924	0
97-4024	Museum	0	0
97-4025	Science Association	0	0
97-4026	Research Consortium	0	0
97-4027	Research Center	0	0
97-4028	Science and Educational Foundation	0	0
97-4029	Educational Council	0	0
97-4030	Museum	0	0
97-4031	Non Profit Grantee	0	0

Other Federal Audits

Number	Subject	Questioned Costs	Unsupported Costs
97-5016	Southern State	114,734	113,900
97-5051	University	795	0
97-5065	University	1,260	0
97-5066	Institute of Technology	900	0

Audit Reports With Outstanding Management Decisions

This section identifies audit reports involving questioned costs and funds put to better use where management had not made a final decision on the corrective action necessary for report resolution within 6 months of the report's issue date. At the end of the reporting period, there were 17 audit reports with questioned costs and 2 reports with recommendations for funds to be put to better use that were not resolved. The status of systemic recommendations that involve internal NSF management are described on page 86.

Report Number	Title	Date Report Issued	Dollar Value	Status
Items Involving Questioned Costs				
95-1022	BBN Laboratories	03/06/95	122,067	2
95-1042	Mr. Wizard Foundation	03/31/95	157,780	2
95-1048	Virginia State Department of Education	09/01/95	317,664	1
95-1051	ASA Edison Chouest Offshore, Inc.	09/15/95	646,266	3
95-5722	State of South Dakota	09/22/95	113,204	2
96-1002	North Carolina Department of Administration	10/01/95	181,459	1
96-1003	Texas Education Agency and University of Texas	11/14/95	514,268	3
96-1009	Society of Automotive Engineers	03/26/96	33,962	1
96-1014	American Educational Research Association	03/20/96	211,879	3
96-1015	Blackfeet Community College	03/29/96	258,955	3
96-1018	Woodrow Wilson National Fellowship	03/27/96	24,657	1
96-1024	College Board	03/28/96	171,663	1
96-1025	Franklin Institute Science Museum	03/28/96	237,678	1
96-1027	Abt Associates	03/28/96	828,915	3
96-1031	National Learning Center	09/30/96	337,377	2

Report Number	Title	Date Report Issued	Dollar Value	Status
96-2113	AMSI	08/28/96	4,054	1
96-5024	University of Wisconsin	03/06/96	177,669	2
Items Involving Funds Put to Better Use				
96-2106	National Bureau of Economic Research	03/29/96	800,000	2
96-6008	UCAR	09/17/96	666,900	3

Status Codes

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

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Semiannual Report to the Congress

National Science Foundation