

Semiannual Report to the Congress

March 2002



National Science Foundation
Office of Inspector General



From the Inspector General

On behalf of the Office of Inspector General of the National Science Foundation, I am pleased to present this summary of our accomplishments for the six-month reporting period ending in March 31, 2002. The audits, investigations, reviews and other activities described in this report reflect our strong commitment to helping NSF maintain and improve the integrity and efficiency of its programs and operations.

The past six months have been extremely productive. Our office issued 19 audit reports that identified \$1.4 million in promised cost sharing that is at-risk of not being contributed, and an additional \$447,573 in questioned costs. NSF disallowed \$940,564 in this period, mostly from audits conducted prior to last October. We closed 101 investigative cases, including 16 civil/criminal cases, and made \$229,828 in recoveries. We also referred 6 cases to the Department of Justice, and assisted the agency in making two findings of misconduct in science that were based on OIG reports.

In January we issued our annual list of the most important management and performance challenges facing the NSF. In developing this list, we employ our best effort to identify the most vulnerable operational and programmatic areas of the agency. These challenges are those requiring significant management attention and resources to either resolve current issues or prevent future ones from arising. During this period, we also contracted with an independent public accounting firm to conduct an audit of the agency's financial statements. For the fourth consecutive year, NSF received an unqualified opinion for the financial statements.



Dr. Stanley Jaskolski, Chair, Audit and Oversight Committee, and Dr. Boesz, at a recent Committee meeting.

Within the Inspectors General community, I chair a workgroup on misconduct in research charged with assisting agencies and Offices of Inspector General (OIGs) to achieve consistency in handling research misconduct issues. Toward that goal, our group has developed standards for administering inquiries and investigations, and are currently testing their effectiveness. Another goal of the workgroup is to develop tools that will facilitate fair, timely, and high quality resolution of misconduct in research allegations. For example, best practices for coordinating investigations by OIGs and agencies are being documented and will be made available for training staff.

Finally, as I write this, the terms of several members of the National Science Board are about to expire, including the Chairman, Dr. Eamon Kelly, and the Chair of the Audit and Oversight Committee, Dr. Stanley Jaskolski. We greatly appreciate the leadership and support they've provided our office, and I personally want to thank them for their vital role in making NSF one of the most respected and effective government agencies. The OIG staff looks forward to working with the Board's new leadership.

A handwritten signature in cursive script, reading 'Christine C. Boesz'.

Christine C. Boesz, Dr.P.H.
Inspector General
May 6, 2002

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The following is a summary of some of the more significant issues described in this Semiannual Report:

- The Inspector General's list of the most serious management and performance challenges facing the National Science Foundation (NSF) is summarized on **page 7**.
- OIG issued the Fiscal Year 2001 Independent Auditor's Report in which NSF received its fourth consecutive unqualified opinion on the financial statements. However, the auditors identified two reportable conditions relating to (1) post-award grant and asset management, and (2) electronic data information systems. Although NSF has an adequate system of award management over its pre-award and award phases, it does not have a comprehensive risk-based internal grants management program to monitor its post-award phase. The audit also revealed vulnerabilities in NSF's electronic data information systems that increase the risk of loss, misuse, and unauthorized modification of information or disruption of essential services. (See **page 19**)
- Providing effective management and oversight of large infrastructure projects remains an important management challenge, as NSF has spent over \$600 million for major research equipment and facilities projects in FY 2001 alone. We have continued our audit work in this area during the current reporting period, issuing one audit report and nearing completion of another. We are also tracking corrective actions taken by the agency to address this issue. (See **page 22**)
- Issues related to cost sharing commitments comprise another of the top ten management challenges facing NSF. Recently we undertook two audit initiatives to gauge the extent of the problem. The first initiative focused on five different campuses of the same university system. The second cost-sharing audit initiative focused on eight geographically dispersed educational institutions that had promised \$500,000 or more of cost sharing. The results thus far indicate that of \$16.5 million of cost sharing promised by five educational institutions, \$1.5 million of claimed cost sharing was not supported in accordance with Federal cost

principles. The audits also indicate that in general, awardees are not accounting for cost sharing adequately. (See page 23)

- In two recent cases, courts firmly enforced the terms and conditions of NSF's awards. Grantees that sued NSF to avoid reimbursing the government for costs improperly claimed were ordered to repay the disputed amounts. In one case, the court ordered a University Foundation to repay \$139,152 in promised cost sharing and stated "NSF was well within its contractual rights to seek relief when the award letter unequivocally stated that as a condition of receiving the grant, the Foundation had to 'agree to share in the costs of the project.'" (See page 32)
- Shortly after participating in an NSF awards conference, attendees became the victims of identity theft. The investigation concluded that the victims' social security numbers (SSNs) were stolen through information they had provided to NSF as part of the registration process. Subsequently, the NSF funding program has modified its procedures to ensure that in the future, the SSNs of all conference participants will be expunged from the event database. In addition, the program issued an advisory and apology to the conference attendees. (See page 40)
- On February 25, 2002, a bioengineering professor from a South Carolina university pled guilty in U.S. District Court to one count of submission of false information to the Federal government. In our September 2001 Semi-annual Report, we reported that the professor submitted a fraudulent final report for an NSF Small Business Innovation Research (SBIR) Phase I grant, that was essentially copied verbatim from a thesis written by one of his students. In addition, a company accused of submitting duplicate SBIR proposals to NASA and NSF and obtaining funding from each agency to conduct the same research, agreed to a settlement in which it repaid \$25,000 to the government. (See page 43)
- Following OIG's recommendations, the Deputy Director issued a finding of misconduct in science in two separate cases: the first involving a biologist at a Washington institution who plagiarized material from another scientist's proposal and; a doctoral candidate in chemistry who falsified data contained in research supported by NSF. Other penalties were assessed in each case. (See page 47)

OIG Management Activities

Management Challenges

As required by law, the OIG submitted its annual statement summarizing what the office considers to be the most serious management and performance challenges facing NSF. To be considered for the challenges list, an activity must fall under at least two of the following criteria established by our office: 1) inherent risk (i.e., high potential for fraud, waste, or abuse); 2) activity critical to NSF's mission; 3) presence of known problems; 4) potential obstacle to achieving the President's Management Agenda. The most serious NSF management challenges identified by the OIG include:

Workforce Planning and Training. The strategic management of human capital is recognized as an important priority throughout government and is an important element of the President's Management Agenda. NSF is vulnerable to a wave of retirements in key areas as 63 percent of the agency's executive workforce, as well as a large percentage of the science and engineering staff, are eligible to retire within five years. Meanwhile NSF's budget for salaries and expenses continues to lag behind the growth of the agency's overall program budget. NSF's Management Controls Committee evaluated this issue as a medium risk that could worsen in the not-too-distant future. As part of the OIG's FY 2002 appropriations bill, Congress requested that our office analyze the adequacy of the agency's staffing and management plan. An interim analysis will be submitted early in April, and our final report is due in the summer of 2002.

Management of Large Infrastructure Projects. In response to an OIG audit report, as well as concerns expressed by Congress and OMB, NSF began updating its policies and procedures during 2001 to strengthen the management and oversight of large facility projects. As part of this process, NSF developed a *Large Facility Projects Management and Oversight Plan*. While we believe the plan is an important first step in ensuring that NSF's large facility projects provide appropriate stewardship over public funds, it constitutes only a broad outline of NSF's intentions. More-detailed guidelines are required in order for corrective action to be effective.

HIGHLIGHTS

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Award Administration. While NSF has demonstrated its efficiency in making awards, we believe that the agency should improve post-award monitoring by establishing written policies and procedures to ensure financial and administrative compliance. In the course of performing financial and compliance audits on a variety of awardees, we have found that some are at greater risk for compliance problems than others. Since NSF staff resources are limited, factors such as award size, type of entity, and amount of experience with Federal grants should be considered when determining which awardees should be accorded greater oversight. NSF's Division of Grants and Agreements (DGA) is developing a risk-management approach to post-award monitoring activities.

Cost Sharing. Cost sharing leverages the government's investment in basic research by obtaining contributions from grantees and others. In FY 2000 NSF made 3,111 awards that required cost sharing amounting to \$508,516,513. Our audits of awardees continue to reveal problems with cost sharing that include shortfalls in contributions, instances of missing or insufficient documentation, and systems that are inadequate to ensure their proper accounting.

Given the large amount of these commitments, the failure to honor cost sharing obligations or to keep proper accounts can have serious consequences for NSF's awards. If promised cost sharing is not realized, either the programmatic objectives are not met or the project is not funded as originally projected. In either case, NSF has paid a larger share than what was agreed to and opportunities for the agency to fund other awards are curtailed. We believe that NSF should re-examine its policies on the reporting of cost sharing and resolving of any questioned amounts to better ensure compliance with Federal guidelines.

Data Security. NSF faces the challenging task of facilitating an open research culture while protecting its critical information assets against unauthorized intrusion. Our review of NSF's information security program indicates that there may be weaknesses that increase security risks. NSF has concurred with our recommendations and has initiated corrective action.

GPRA Data Quality. The President's Management Agenda outlines plans to formally link performance review with budget decisions beginning in FY 2003, complementing the objectives of the Government Performance and Results Act (GPRA). While NSF is making steady progress in complying with GPRA, the agency needs to evaluate and improve both its formulation of GPRA measures and its verification of data in order to facilitate the integration of budget and performance information. In a report issued in June 2001, GAO found that some strategies were vague and failed to identify specific steps for achieving their goal.

In addition, we believe that the validity of NSF's GPRA data and outcome measures has not been firmly established. In order to address these concerns, which

were raised by GAO in a report on NSF's FY1999 Performance Report, the agency retained a contractor to verify and validate selected GPRA performance data, including outcome measures. These measures are based on the reports of various external expert panels including the Committees of Visitors (COVs) and Advisory Committees (ACs), which conduct evaluations of program activities. Although the contractor concluded that NSF's processes were adequate, we found that the contractor did not assess the process used by the committees to make their determinations, nor did it evaluate the underlying data used by the committees in making their judgments. Our office is planning to conduct a review of the COV process during the current fiscal year.

Cost Accounting Systems. At present, NSF's information systems do not readily provide the basic cost accounting information needed to effectively manage and report on agency operations, such as the cost of NSF's various grantmaking activities (e.g., proposal processing, peer review, post-award administration) or large infrastructure projects. NSF's ability to measure agency performance, link its costs to its results, and fully implement GPRA, is dependent on an effective financial and cost accounting system. Therefore, NSF should modify its accounting systems so they can capture total costs and readily supply total cost information useful to NSF management, the National Science Board, and Congress.

Management of U.S. Antarctic Program. The successful operation of the USAP requires unique management and administrative skills that are responsive to the special needs of Antarctic scientific research. Staff must not only know the science, but must also manage contractors engaged in delivering a broad range of services to the American scientific community located in a difficult and dangerous environment. Our audit work has focused on reviewing these support activities because of their many inherent risks. For example, we are currently reviewing USAP's safety and health program, regarded as a high-risk activity because of the difficulties of delivering medical services in such a remote location. Another challenge for the program is the tracking and accounting for items associated with the USAP's large and distant infrastructure, which includes equipment, planes, ships and buildings. Capturing the correct information requires close coordination among OPP, its contractors, and NSF financial staff.

Merit Review and its Role in Fostering Diversity. The effectiveness and integrity of the merit review system may be NSF's most valuable asset. During the past year the National Academy of Public Administration released a report on the agency's criteria for project selection, focusing in particular on the impact of Criterion 2, which is aimed at evaluating "broader impacts" of proposed projects, including potential societal effects. NAPA stated that NSF needed to develop clearer objectives for the new criterion, adopt quantitative measures and performance indicators to track those objectives, and conduct broader-based panel reviews with participants drawn from a wider range of institutions, disciplines, and underrepresented minorities. NSF has initiated several changes to the merit review process in the past year to

ensure that more attention is paid to Criterion 2, and we understand that further changes are being considered. NSF also states that it is adding new GPRA measures to track progress in encouraging participation in the merit review process by a broader range of institutions and underrepresented researchers.

The Math and Science Partnership Program. NSF has been designated the lead agency on a key element of the President's initiative, *No Child Left Behind*, aimed at strengthening and reforming K-12 education. The partnerships will provide \$160 million this year for state and local school districts to join with colleges and universities to improve math and science education at the pre K-12 level. Implementation of the program will pose several challenges to NSF. On a practical level, it requires NSF to articulate expectations clearly at the outset and make many awards within a short time frame; provide extensive coaching of projects in their formative stage to ensure that awardees do effective project planning; and assist project partners in building a shared sense of purpose and coordinating efforts. Therefore, the involvement of NSF on a continuing basis is essential.

Legislative Review

The Inspector General Act of 1978, as amended, mandates that our office monitor and review legislative and regulatory proposals for their impact on OIG and NSF programs and operations. We perform these tasks for the purpose of providing leadership in activities that are designed to promote economy, effectiveness, efficiency, and the prevention of fraud, waste, abuse and mismanagement. We also keep Congress, the National Science Board and NSF management informed of problems and monitor legal issues that have a broad effect on the Inspector General community.

During this reporting period we paid particular attention to items that we believe may affect NSF's ability to meet the President's Management Agenda and the agency's management challenges identified by the OIG. We also focused on items that we believe have an impact on the IG community's efforts to assist agencies in meeting their management goals. Of the 16 bills, 1 Regulation, and 2 court cases we reviewed, the following items merit discussion in this section:

H.R. 3338 – Homestake Mine Conveyance Act of 2001

This legislation was enacted as law on January 10, 2002. The Homestake Mine was selected by the National Underground Science Laboratory Committee, an independent panel of distinguished scientists, as the preferred site for the construction of the National Underground Science laboratory. The laboratory would be used to conduct important scientific research.

The Mine's owner was unwilling to donate, and the State of South Dakota was unwilling to accept, the property at the Mine for the laboratory if the owners and the State of South Dakota would continue to have potential liability with respect to the transferred property. This legislation, which is contingent on the approval by the National Science Board and the making of an award by NSF for the establishment of the laboratory at the Mine, provides that the Federal government will assume a portion of any potential future liability.

H.R. 3338 and the NSF management challenge cited above as "Management of Large Infrastructure Projects" are related. The management challenge concerns the liability exposure associated with the Homestake Mine and whether NSF would be provided the necessary resources to properly manage this large project, assuming an award is ultimately made.

H.R. 3844 – Federal Information Security Management Act of 2002

H.R. 3844 was designed to strengthen Federal Government information security, including establishing the requirement for the development of mandatory information security risk management standards. The bill, if enacted, will require each Federal agency to develop, document, and implement a agency-wide information security program that supports the operations and assets of the agency. This includes procedures for detecting, reporting, and responding to security incidents, and notifying and consulting with appropriate law enforcement agencies and Offices of Inspectors General.

The Act also requires that each Inspector General appointed under the Inspector General Act of 1978 perform an annual IT security evaluation or arrange for an independent external auditor to perform it. The Act provides that in those agencies that do not have an Inspector General appointed under the 1978 Act, the head of the agency shall engage an independent external auditor to perform the evaluation. The legislation requires that the results of this evaluation be submitted to the agency head no later than March 1, each year, starting in 2003.

In light of the fact that H.R. 3844 specifically states that the evaluation provision applies to Inspectors General appointed under the Inspector General Act of 1978, this provision, in its current form, appears not to apply to "Designated Federal Entity" (DFE) Inspectors General offices. By omitting the phrase "as amended," this legislation appears to exclude the 28 DFE agencies, including NSF, added to the Inspector General Act in 1988. In these cases, the head of each agency may be responsible for engaging an independent auditor to perform the evaluation described above, rather than the OIG.

Recently, our office raised the above issue with the Congressional sponsor of H.R. 3844's legislative staff. We were informed that the intent of Congress is to

include both “establishment” and “DFE” agencies under the agency evaluation provision contained in H.R. 3844. The legislative staff agreed with our office that the bill, as presently constructed, appears ambiguous. We were advised that to eliminate any potential ambiguity, the legislation will be amended to incorporate the words “as amended”, in accordance with our recommendation.

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

A legislative priority that we support is amending PFCRA under the Act’s enforcement provisions. We have raised this issue in several prior semiannual reports.

PFCRA sets forth administrative procedures that address allegations of program fraud when the claims are less than \$150,000. Currently, the executive departments, military departments, and “establishments” as defined under the Inspector General Act of 1978, are the only agencies permitted to proceed under PFCRA. NSF and other DFE agencies with Inspectors General appointed by agency heads are not included.

We believe that the enforcement provisions of PFCRA would increase NSF and other DFE agency recoveries in instances of fraud that fall below PFCRA’s jurisdictional threshold of \$150,000. For example, if the Department of Justice declines to prosecute these cases under the False Claims Act, NSF would be able to use PFCRA’s administrative procedures to recover double damages and monetary penalties, when applicable, as an alternative. In short, including NSF and other DFE agencies under PFCRA will support the OIG community’s statutory mission to deter fraud, waste and abuse.

We ask that Congress consider amending PFCRA to allow agencies with Inspectors General appointed under the Inspector General Act of 1978, as amended, to use PFCRA’s administrative procedures to recover double damages and monetary penalties provided for under the Act.

Outreach / Prevention Activities

We began this period with an office-wide retreat to discuss strategies for meeting the goals identified in our Outreach plan (September 2001 Semiannual Report, p. 49):

1. Ensure the integrity of financial, administrative, and research systems;
2. Detect fraud, waste, abuse, and research misconduct;

3. Obtain and maintain current knowledge about the communities we serve so as to focus on matters of substantive concern;
4. Make it easy for the communities we serve to contact and interact with us.

At the retreat, we agreed to combine our efforts more with those of NSF, and to focus on activities that reach a broader audience than just a single university. We determined that our primary audiences should be NSF program officers, other NSF employees, awardee sponsored research offices, and professional societies. We also identified a need for internal activities designed to improve our knowledge of NSF programs and operations.

Opening Our Doors to NSF

OIG Open House. Our second annual OIG Open House, held in February, was an opportunity to talk with NSF employees in an informal and congenial atmosphere. The home-cooked food vanished rapidly as we were joined by a large number of NSF program officers, staff, and senior managers. We provided attendees with copies of new outreach materials and brochures and sought their advice on a conflict of interest poster we developed to facilitate our outreach efforts.

The Open House also helped to revitalize our liaison program, in which OIG staff are assigned to serve as liaisons to NSF directorates. These activities facilitate open and frequent communication between the OIG and agency units and increase our understanding of agency programs and operations. Our liaisons serve as points of contact for NSF staff to discuss allegations or concerns and to seek feedback on OIG semi-annual reports and the audit plan.

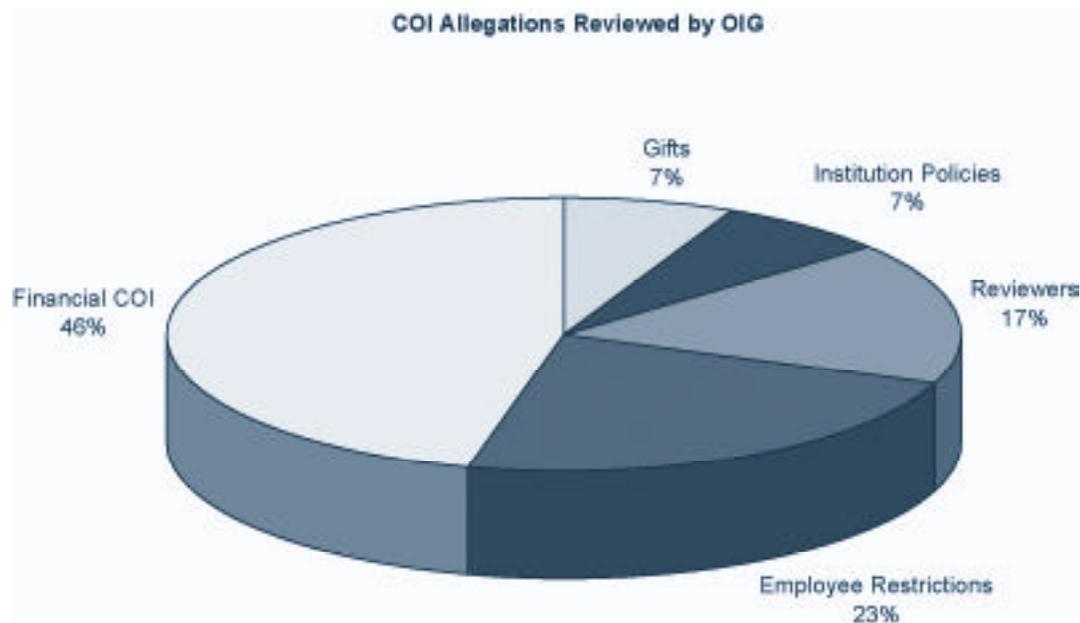


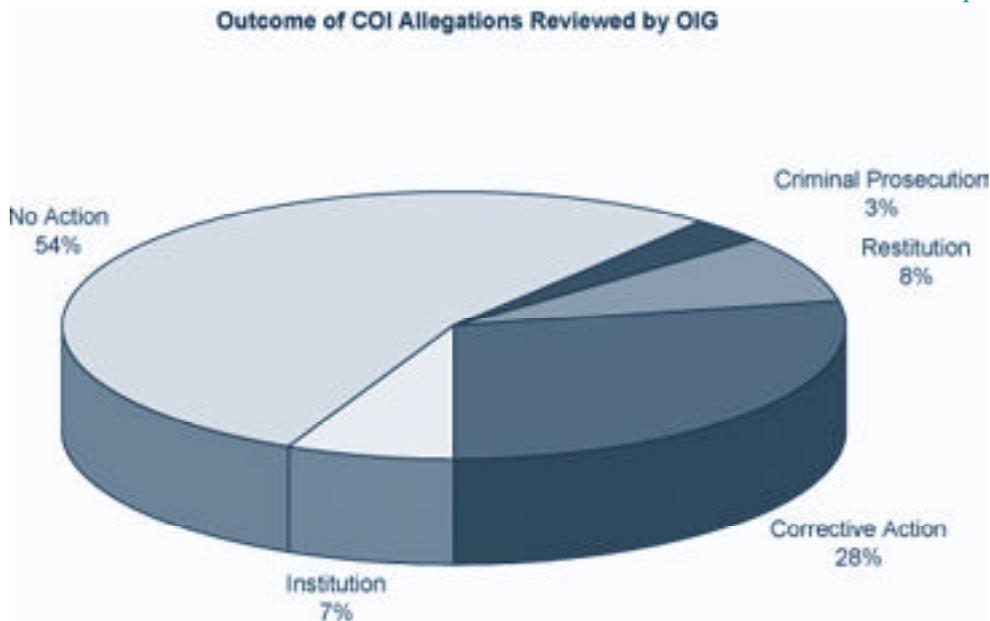
Gloria vanKan (right) meets and greets NSF colleagues.

Educational Materials. We continue to develop and improve the handout materials we provide about our office and its activities. In this period, we developed two new brochures. The first informs NSF staff of the requirement to bring to our attention any evidence or allegations of misconduct, research misconduct, accounting irregularities, fraud, waste, abuse or corruption involving NSF staff, programs or operations. The brochure explains the requirement that NSF awardees report substantial management problems and describes our methods for handling allegations and ensuring confidentiality. The second brochure alerts NSF employees, awardee institutions and PIs to the seriousness of conflict of interest allegations, how they should be handled, and the consequences of failing to resolve such situations in a timely manner.

Conflict of Interest Issues

The increasing awareness within the bio-medical community of conflict of interest issues prompted us to review past conflict of interest cases for significant trends. Our analysis of the cases investigated from 1998-2001 showed that approximately 7 percent of all closed cases relate to COI and contain either allegations of financial COI, violations of employee restrictions, undeclared reviewer conflicts, or failures in institution policies. In resolving these cases, we found that 28 percent required corrective actions, 8 percent produced some form of restitution, and 3 percent resulted in criminal prosecutions. 54 percent ended in no action by our office because the allegation was found to be groundless, or a disclosure was made that resolved the issue. The following charts display the results of our review:





We believe that conflict of interest is an area in which increased outreach and education can help prevent future improprieties from occurring. Toward that goal, OIG and the Office of General Counsel prepared a conflict-of-interest poster that we plan to use in outreach presentations to enhance our educational efforts about institutional and personal conflict of interest.

Presentations at Conferences

During this period, we participated in several professional society meetings and other types of outreach activities. Many were conducted jointly with NSF staff. Among these activities were meetings at Small Business Innovation Research (SBIR) conferences, the Society of Ethics across the Curriculum, the conference of Southern Graduate Schools, Association of Medical and Graduate Departments of Biochemistry, and the American Association for the Advancement of Science. Through these meetings we were able to:

- learn about the latest trends in science.
- educate attendees about the function of an IG's office.
- describe the investigative process, present statistics on case resolution, and discuss compliance issues and techniques through our participation on panels and workshops.
- inform the community about assessing "intent" in research misconduct cases
- communicate the status of the OSTP Research Misconduct policy and specific agency implementation plans.
- facilitate contacts between agency and OIG staff and attendees.

We continue to respond to invitations from individual colleges and universities, but encourage the inclusion of other institutions. Our presentation at Georgia Tech included attendees from Emory and several local Historically Black Colleges. At the

University of Colorado, where we presented on research misconduct and compliance issues, our session was teleconferenced to Colorado State University. We also gave presentations to students and/or faculty at the University of Delaware, the University of Maryland, and Georgetown University.

In our capacity as a leader on the subject of research misconduct (see p. 35), we also participated in panel discussions with other government agency representatives at the October meeting of Society for Research Administrators in Vancouver, British Columbia. The panels focused on policy implementation, compliance issues, and quality procedures for inquiries and investigations, with an emphasis on best practices for compliance with Federal regulations. The IG's presentation on Federal compliance was so well attended, that a second impromptu presentation was scheduled the next morning to meet the demand for this information.

External Requests for OIG Comments

During the last six months, the OIG responded to several inquiries and requests from other Federal organizations, including the General Accounting Office (GAO), Office of Management and Budget (OMB), and President's Council on Integrity and Efficiency (PCIE):

- In October, NSF and the OIG responded to a GAO A-133 survey to obtain information about how the 24 Federal agencies subject to the Chief Financial Officers Act are using audit reports prepared under the Single Audit Act. We expressed our opinion that for NSF, the value of the A-133 audits are diminished because awards from smaller agencies are frequently not selected for testing in the audit process.
- In January, the OIG responded to a PCIE request for comments on the draft Orange Book, delineates the responsibilities of the cognizant and oversight agency for audit.
- Our office provided comments to OMB on the draft *2002 OMB Circular A-133 Compliance Supplement*. The guidance is used by A-133 auditors in identifying compliance requirements that should be tested for A-133 audits.

Cooperative Work

We continue to assist other Federal agencies in the implementation of various government-wide programs:

- *The President's Management Agenda* discusses a governmentwide initiative for improving financial performance and establishing a baseline of erroneous

payments to serve as a benchmark for monitoring progress. The OIG is participating in a joint working group of members of the PCIE and Chief Financial Officer Council to address improper and erroneous payments. The work group will develop and benchmark methods to reduce improper payments made by Federal government agencies.

- We met with representatives from the U.S. Department of Commerce OIG to share our experience in contracting external audits to independent accounting firms.
- We provided information to the U.S. Treasury Department OIG about how we review and track audit resolutions for OMB A-133 audit reports.



Distinguished OIG retirees Helen Norris and Roy Jones pose with Carol Taylor, Investigative Specialist.

Audits & Reviews

We are responsible for auditing grants, contracts, and cooperative agreements funded by NSF, and for reviewing agency operations to ensure that they are conducted effectively and efficiently. Many factors are used to determine what to audit or review, including requests by Congress, National Science Board members, NSF managers, and other government officials. In choosing our audits, we also consider NSF strategic goals and management challenges, award recipient's prior experience in managing Federal awards, and priorities set by Federal financial regulatory bodies and the OIG. We focus our audits and reviews on areas that present the most management and financial risk to NSF in accomplishing its scientific research and education goals effectively and efficiently.

Our financial and compliance audits of award recipients determine (1) whether costs claimed by these recipients are allowable, reasonable, and allocable to NSF's awards, and (2) if awardees had adequate procedures and controls to ensure compliance with Federal laws and regulations, NSF requirements, and the terms and conditions of the award. Performance audits and reviews evaluate the effectiveness and the efficiency of the administrative and programmatic aspects of NSF and awardee operations. In addition, by law we conduct the annual audit of NSF's fiscal year financial statements, including evaluations of internal controls and data processing systems.

Significant Reports

Financial Statement Audit & Review of Information Systems

Improving financial management and information security has been an important priority of the Federal Government for many years. *The President's Management Agenda* identified improved financial management as one of five government-wide initiatives the new administration would emphasize. The President's goal is to ensure that Federal financial management systems produce accurate and timely information to support operating, budget, and policy decisions.

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Audit Terms Defined

There are three levels at which deficiencies in internal controls identified during the financial statement audit of federal agencies are reported. The more significant findings (material weaknesses and reportable conditions) are reported by the auditor in the "Report on Internal Control" that is included in the Auditor's Report included in the Accountability Report. Findings not deemed to be as significant are reported to management in a Management Letter.

Material Weakness

is a type of reportable condition in which the design or operation of one or more of the internal control components does not reduce to a relatively low level the risk that misstatements of material amounts may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions.

Reportable Condition

a matter that in the auditor's judgement, represents a significant deficiency in the design or operation of internal control, that could adversely affect the organization's ability to record, process, summarize and report financial data consistent with assertions by management in the financial statements. (From OMB Bulletin 01-01 Audits of Federal Financial Statements)

Management Letter Comment

a finding or recommendation for improvement in internal controls and other management issues, identified during the audit, that does not reach the level of severity warranting a determination of reportable condition or material weakness by the auditors.

Since 1990, Congress has enacted several laws designed to improve Federal financial management and information systems security. The Chief Financial Officer's Act of 1990 (CFO Act), as amended, requires that Federal agencies prepare financial statements and the agency's OIG, or an independent public accounting firm selected by the OIG, audit these statements annually. The Government Information Security Reform Act (GISRA), enacted in October 2000, requires agencies to perform annual reviews and report on their information system security programs. In addition, Inspectors General are to provide independent evaluations of the information security program and practices of their agencies. We contracted with the auditing firm KPMG to perform these reviews.

During this semiannual period OIG issued the Fiscal Year 2001 Independent Auditor's Report which also reports the results of the information security review. NSF received its fourth consecutive unqualified opinion on the financial statements. However, in its Report on Internal Controls over Financial Reporting, the auditors identified two reportable conditions relating to (1) post-award grant and asset management, and (2) electronic data information systems. Award administration and data security were both identified as management and performance challenges in the Inspector General's January 30, 2002 letter to the Chair of the National Science Board and the Director of the National Science Foundation.

The audit revealed that although NSF has an adequate system of award management over its pre-award and award phases, the agency does not have a comprehensive risk-based internal grants management program to monitor its post-award phase. As a result, awardees' use of Federal funds may not be consistent with the financial, research or education objectives of the grant and leave resources unprotected from waste, fraud, and mismanagement. Federal agencies are required to develop and execute management strategies that ensure programs and operations account for results.

NSF grantee expenditures represent approximately 90 percent of total NSF expenditures for the year. Audits of these

expenditures continue to identify material instances of awardee non-compliance with Federal regulations and grant terms and conditions and material internal control weaknesses. Examples include: missing or insufficient documentation for costs claimed on the awards; inadequate accounting systems which do not properly record timekeeping, indirect costs, and cost-sharing; and inadequate monitoring of labor effort and subawards.

The audit report recommends that NSF improve its post-award monitoring by establishing written policies and procedures to ensure awardees' compliance with award terms and conditions. A comprehensive risk based internal grants management program would result in more in-depth reviews by NSF of both the administrative and financial management practices of an institution, and its compliance with Federal and NSF grant requirements.

The finding also discusses the need for improved monitoring and reporting of at least \$200 million of assets owned by NSF but held by awardees. In most cases the title to an asset purchased with grant funds transfers to the grantee, however in some cases NSF retains ownership of the asset. Where NSF retains title to the equipment, OMB Circular A-110 Section 33 requires grantees submit an annual inventory listing NSF-owned property in their custody. Although some procedures are in place to monitor these assets, there is no process within NSF either to check the accuracy of the inventories submitted by grantees or to assess the condition of these assets.

Inadequate tracking of NSF assets could result in potential loss, misuse, or theft, as well as misstatement of their value on NSF's financial records. Consequently the audit report recommends that NSF (1) develop procedures to ensure that all grantees report information on NSF-owned assets in their custody, (2) establish internal procedures for an annual review of the asset inventory listings submitted by grantees for accuracy and reasonableness, and (3) develop procedures to periodically confirm the existence and condition of these assets.

The audit also revealed certain vulnerabilities in NSF's electronic data information systems that increase the risk of loss, misuse, and unauthorized modification of information or disruption of essential services, accidentally or intentionally, by external or internal parties. These vulnerabilities may adversely affect NSF's ability to produce accurate data for decision-making and financial reporting, because they compromise the reliability and availability of data recorded in or transmitted by NSF's electronic data information systems.

Because of these vulnerabilities, the auditors determined that NSF was not in compliance with Federal financial management system requirements identified in the Federal Financial Management Improvement Act of 1996 (FFMIA) and OMB Circular A-130, *Management of Federal Information Resources*. The audit report recommends specific steps to improve access controls and NSF's intrusion detection

capabilities in order to address these information security vulnerabilities and ensure NSF's future compliance with this Act.

NSF management agreed to most of the auditors' recommendations with respect to post-award grant administration, asset management, and electronic data information systems. However, they disagreed with the categorization of the findings as reportable conditions and the non-compliance with laws and regulations. In the next semiannual reporting period, we will issue our FY 2001 management letter, which will address other matters involving NSF internal controls over financial reporting and award management. It will also identify any outstanding recommendations from the FY 2000 management letter.

Financial Management of Major Research Equipment Projects

Providing effective management and oversight of large infrastructure projects remains an important management challenge, as NSF has spent over \$600 million for major research equipment and facilities projects in FY 2001 alone. In prior reporting periods, our audits identified needed improvements in NSF's policies and procedures for overseeing large facility projects. In response to concerns raised by Congress, we have continued our audit work in this area during the current reporting period and are tracking corrective actions taken by the agency to address this issue.



Wayne Van Citters, Director, Division of Astronomical Sciences, escorts Tom Cooley, CFO, the Inspector General and other colleagues through an NSF infrastructure project.

New audit report issued. In an audit of a large facility project completed during this period, we reported that difficulties in managing its instrument development program resulted in the delay of delivery of sophisticated instruments critical to the project for at least two years. These difficulties affected the project's operations in several ways. First, the delay made it necessary for the project to borrow less-advanced "visitor" instruments to begin operations on schedule. But without the instruments

in the original plan, the full commissioning of the project was delayed, the project's efficiency rate was reduced, and the project may not be as competitive as hoped. Additionally, the delay cost the project \$4.2 million in unplanned expenditures: \$3.6 million for "restarting" instrumentation, and \$600,000 to adapt and redesign visitor instruments. Project managers developed a new management plan for the project that should help ensure that future instruments are delivered on time and within budget.

Audit in progress. In an audit currently underway, we are assessing the financial management and controls over several large facilities projects. The audit was requested by the Senate Subcommittee on VA, HUD and Independent Agencies of the Senate Appropriations Committee, who asked that we determine if NSF is solely using its Major Research Equipment appropriation to fund construction and acquisition costs for major research equipment and facilities. We have identified several issues regarding needed improvements in NSF's financial policies and management for these projects and provided NSF management with a discussion draft report to facilitate the management comment process on our findings and recommendations. We plan to issue this audit in May, 2002.

Status of NSF's New Project Management Policies. In the March 2001 Semiannual Report (pp. 6-7), we reported on our audit of the financial management of a large facility project. In that report, we recommended several actions to help NSF improve its large capital project administration, and to resolve financial issues related to the specific project we reviewed. As of the end of this reporting period, five of seven recommendations still have actions in progress. Completed actions include addressing the project's budget approval issues and issuing interim project management guidelines. Pending actions include creating and filling a new position that will report to the Chief Financial Officer, with responsibilities for developing and implementing guidelines and policies for managing and overseeing NSF's large facilities projects. They also include developing new facilities guidelines and manuals, and subsequently training NSF managers who are responsible for overseeing these large projects. At this time, the pending actions are not expected to be completed until the end of fiscal year 2002.

Cost Sharing

Issues related to cost sharing commitments comprise one of the top ten management challenges facing NSF. Recently we undertook two audit initiatives to gauge the extent of the problem. In our September 2000 Semiannual Report (pp. 9-10) and our March 2001 Semiannual Report (p. 8), we reported overvalued and unsupported cost sharing respectively at two campuses of a western state university system. The first initiative focused on five additional campuses within the university in order to determine whether cost-sharing problems were systemic. In our September

2001 Semiannual Report we reported on three of the audits at this system (pp. 23-25), and we now report on the last two.

The second cost-sharing audit initiative focused on eight geographically dispersed educational institutions that had promised \$500,000 or more of cost sharing. The sample included both large research universities with hundreds of NSF awards, and small colleges with only one award. We reported our progress on four audits in our September 2001 Semiannual Report (pp. 25-26); in this semiannual report we report on two more. In the next semiannual report we plan to present a summary of our two cost-sharing initiatives.

During this reporting period NSF management also resolved six audits involving cost sharing/industrial contributions, five of which were reported in our September 2001 Semiannual Report (pp. 23-28). For the sixth, we are both reporting on the audit and NSF management's resolution in this semiannual report.

The table below shows that of \$16.5 million of promised cost sharing promised by five educational institutions, \$1.5 million of claimed cost sharing was not supported in accordance with Federal cost principles:

Common Cost Sharing Problems

Awardee	Promised Cost Sharing \$	Questioned or At-Risk Cost Sharing \$	Inadequate Accounting For Cost-Sharing	Time And Effort Problem	Cost-Sharing Certification Problem	Audited Award (s) Not Reported In A-133 Audit
Western State University	7,478,961	417,887		X	X	X
South Central University	3,250,839	375			X	X
Northeastern University*	2,966,526	48,408	X	X	X	
Western State University	2,333,098	601,439	X	X	X	
Central U.S. College	515,500	461,740	X	X	X	
Total	16,544,924	1,529,849				

**This university commingled cost sharing with NSF costs, which contributed to an excess claim of \$48,408 of costs NSF reimbursed to the University.*

Questioned and Unsupported Costs. Federal guidelines state that cost sharing must be verifiable from the recipient's records, not included as contributions for any other Federally-assisted project, and necessary and reasonable for the accomplishment of project objectives. When audits question the allowability or underlying support of a recipient's claims for cost sharing, the recipient's ability to meet its cost-sharing obligation may be jeopardized. In these circumstances, either the intended scope of a project may be compromised or NSF may pay more than its share of the costs, thus reducing its opportunities to fund alternative projects. The most common reason for unallowable costs in the above audits was lack of documentation due to inadequate accounting for cost sharing and time-and-effort reporting problems.

Inadequate Accounting For Cost-Sharing. Federal requirements state that awardees shall have financial management systems that provide an accurate, current, and complete disclosure of the financial results of Federally-sponsored programs. In our reviews, we have found that many major institutions have determined that the most effective way to ensure compliance with Federal requirements and the integrity of claimed cost sharing is to establish a financial accounting system that can separately track the cost-sharing expenditures for each NSF award. However, three of the institutions in the above table did not have systems that could separately track cost sharing, and either a) commingled costs charged to NSF for reimbursement with costs the awardee contributed in the form of cost sharing or b) commingled cost-sharing expenses, reimbursable costs, and unrelated expenses in departmental accounts. As a result of both kinds of commingling, it was difficult to determine the cost-sharing amounts institutions contributed for individual NSF awards. Specific examples follow:

- A northeast university commingled reimbursable and cost shared expenses in one account, and did not identify cost sharing expenses when incurred, resulting in inaccurate cost-sharing records, frequent revisions, and a \$48,408 overcharge of direct costs to NSF. The university subsequently installed an accounting system that segregated the reimbursable portion of costs from those the university contributed as cost sharing. However, its new software did not correctly calculate cost sharing and overhead on subcontracts, and the university was trying to obtain modifications from the software vendor.
- A campus in the western state university system commingled cost-sharing expenses with other non-project costs in departmental accounts, did not know until the time of our audit whether it had met its cost-sharing obligations on 30 NSF awards, and had to reconstruct six years of cost-sharing data. We recommended that prior to making any new awards to this organization, NSF require the university to develop written policies and procedures to ensure that the cost sharing from all sources for each award is separately identified and that the campus implements adequate controls to track and document cost sharing.

- A college in the central U.S. also commingled NSF reimbursable charges, cost-sharing expenses for the NSF award, and other unrelated expenses in departmental accounts. We considered this lack of internal controls to be a material weakness, and we recommended that prior to making any new awards to the college, NSF ensure that the college has a system that complies with Federal requirements.

Time and Effort Reporting Problems. Federal guidelines state that recipients of Federal funds shall have payroll-distribution systems that verify, after-the-fact, the time that professors and professional staff spend on specific Federal awards. In most cases, labor costs are the single largest line item in an NSF award budget. Our audits this period found that four award recipients did not comply with Federal requirements for labor effort accounting and reporting, because of inexperience with or lack of understanding of the applicable cost principles. Payroll-distribution-system inadequacies reduce assurance that claimed labor costs are allocable to the NSF awards, and they can result in unallowable, questioned, or disallowed costs.

- A western state university foundation did not confirm faculty release time claimed as cost sharing on 10 of 28 NSF audited awards for up to six years after the fact. We recommended that NSF require the foundation to revise its policies and procedures to ensure that faculty release time is properly identified in the proposal and monitored throughout the award period.
- A second western state university campus also did not have an adequate system to track, document, or certify faculty release time, which constituted 22 percent of the total cost sharing contributed to 30 audited NSF awards; and it had to reconstruct and certify six years of records. Because of the questionable reliability of these records, we were unable to substantiate \$522,025 of faculty release time. We recommended that prior to making any new awards to the campus, NSF should require it to provide written policies and procedures that comply with Federal requirements for verification of faculty release time.
- At a northeastern university the official responsible for confirming after-the-fact time spent on the NSF audited award was not always required to complete the confirmation. We recommended that NSF work with the university's oversight agency to ensure compliance with applicable Federal cost principles.
- A small college in the central U.S. also did not have a system to certify time and effort, although we did not question costs, because the employees who worked on the grant worked on it exclusively. However, we considered the lack of a labor-distribution system that complies with Federal requirements a material internal control weakness because of the possibility that employees could have worked on other projects. We recommended that prior to making

another award to the college, NSF ensure that it has established a payroll-distribution system that complies with Federal after-the-fact certification requirements.

Cost-Sharing Certification Problems. NSF requires that in all cases where grantee cost-sharing commitments are \$500,000 or more, an Authorized Organizational Representative (AOR) report and certify the amount of cost sharing as part of the annual progress and final project reports. When award recipients do not comply with these certification requirements, NSF has less assurance that cost sharing is being met.

Of the audits reported in the above table, we found that two of the award recipients did not file any cost sharing certifications because they were unaware of NSF reporting requirements or did not have written policies and procedures requiring compliance. We recommended that NSF ensure that the award recipient establishes written policies and procedures requiring certification; or that the institution understands and complies with NSF's certification requirements.

In two other cases, the amount of cost sharing reported was inaccurate, and in a third case the cost-sharing certifications were not signed by an AOR:

- In the first instance of inaccurate cost-sharing reporting we recommended that NSF ensure that the western state university campus develop written policies and procedures requiring cost-sharing certification.
- In the second instance, we recommended that NSF ensure that a northeastern university certify only to actual cost sharing, not to actual, estimated, and obligated amounts in one sum.
- Finally, one western state university foundation submitted cost-sharing reports, but they were not signed by an employee at a management level sufficient to commit the foundation to the conduct of a project or to ensure its adherence to NSF's requirements. We recommended that NSF require the foundation to revise its policies to ensure that its AOR has sufficient authority, management position, and independence to certify the annual cost-sharing reports.

A-133 Audit Limitations. Federal guidelines require that non-Federal entities that expend \$300,000 or more in a year in Federal awards shall have a single audit (the A-133 Audit) performed by independent auditors, such as CPA firms or state auditors. Based on a review of the awardee-prepared Schedule of Federal Award Expenditures, the A-133 auditors decide which Federal programs to audit each year. Selection criteria include expenditure thresholds, risk analyses, and whether programs administered by the awardee are part of a "cluster," defined as a grouping of closely

related programs that share common compliance requirements. One of the clusters relevant to NSF is the Research and Development (R&D) cluster. Inclusion of smaller NSF R&D awards in this cluster increases the chance that NSF awards may be reviewed as part of the A-133 audit.

For the awards we audited, we wanted to determine whether the A-133 auditors had reviewed NSF awards, and in particular whether the audit reviewed for cost-sharing compliance. In one case, the university erroneously did not include eight NSF R&D awards in its R&D cluster; as a result, the awards were not reflected in the listing provided to the A-133 auditors. Therefore none of these awards were subject to testing under the A-133 audit. In another case, the awardee did not list the NSF grant on its Schedule of Federal Award Expenditures, and the A-133 auditors were not aware of it. When award recipients do not properly cluster or list NSF awards for A-133 auditors to review prior to their selection of audit samples, the awards are unlikely to be tested in the A-133 audit process.

Six Cost Sharing Audits Resolved. Four of the six audits that were resolved during this reporting period were of campuses in the western state university system, one was of a southwestern university in the geographically diverse audit initiative, and the last was a northeastern university that provided industrial contributions.

- We have reported above on the inadequate time and effort confirmation, the improperly signed cost-sharing certifications submitted to NSF, and the A-133 finding for one campus of a western state university, which received 28 NSF awards requiring \$7.5 million of cost sharing. During audit resolution, NSF found that the campus had implemented adequate policy and procedural changes to document and certify faculty release time, to ensure that a representative with sufficient authority signs the cost-sharing certifications to NSF, and to cluster R&D awards.
- At the second western state university campus, NSF funded 32 awards totaling \$11.3 million, requiring \$5.5 million in cost sharing. During audit resolution NSF sustained \$6,759 of questioned cost-sharing costs incurred after the expiration of four awards, for which the campus agreed to make repayment or adjust its NSF account. Regarding the findings that the campus had not certified its cost sharing, and that some NSF R&D awards were not included in the R&D cluster, NSF found that the campus' modifications of its cost-sharing tracking system and its agreement to cluster awards correctly satisfied our recommendations.
- The third western state university campus met its cost-sharing obligations on three awards for which NSF provided \$363,771, and the campus promised to provide \$112,141 of additional cost sharing. During audit resolution, NSF

found that the campus had satisfied two recommendations by agreeing to classify R&D awards properly, and to clarify in its policies and procedures that the university, not the principal investigator has primary responsibility for adherence to award conditions. Regarding our recommendation that the campus update its cost-sharing policies and procedures, NSF flagged the campus for review of its revised procedures before making another award to this university.

- At the fourth western state university campus, NSF provided \$1.3 million and required \$2.5 million on an award to develop a high-performance statewide computer network. We found \$1.2 million of the cost sharing was unallowable because the campus incurred \$1.1 million after the expiration date of the award, and could not provide time-and-effort reports to support \$131,915 in claimed faculty release time. During audit resolution, NSF received additional documentation for the faculty time and accepted the \$1.1 million of post-award cost sharing, which had indisputably been provided. NSF also determined that the campus adequately addressed our recommendation to establish written policies for financial management, subrecipient monitoring, and cost-sharing certifications.
- NSF resolved a cost-sharing audit of a western state university, which had received \$3.1 million for three awards and required \$1.9 of cost sharing. The agency (1) sustained \$96,764 of questioned costs relating to inadequate documentation, but offset them with other allowable cost-sharing the university provided during audit resolution; (2) determined that the university had adequately responded to our recommendation to maintain records for three years after final reports are filed; and (3) flagged the university in NSF's system to review its final changes in written policies and procedures for monitoring department-level cost sharing.
- During this reporting period NSF resolved our findings and recommendations for a northeast engineering research center (ERC) that overstated industry support. We did not question any costs, but recommended that NSF (1) require the university to develop policies and procedures to adequately account for and document in-kind contributions, (2) independently verify the accuracy of the ERC's annual report, and (3) ensure that all reported industrial members are members as defined by written membership agreements. NSF management determined that the university adequately responded to all three recommendations.

We also made recommendations to NSF for internal improvements in its management of ERCs overall. NSF submitted a corrective action plan that included increased scrutiny of ERC annual reports and interactive web-based training for Center

staffs. We determined that the plan satisfied most of our recommendations, but postponed final action until we can review NSF's proposed written protocol for the review of performance data.

Other Reports

During this semiannual period, we completed two contract audits that were requested by NSF's Division of Contracts, Policy and Oversight and one audit of two cooperative agreements that was considered "high risk" to determine whether costs claimed were reasonable, allocable, and allowable. We also reviewed findings related to NSF grants contained in numerous A-133 audit reports.

In general, we found that these awardees needed to strengthen internal controls and improve compliance with NSF award requirements and Federal regulations. Weaknesses were found in the areas of labor reporting, indirect costs, and subrecipient monitoring. In addition, we found a lack of adequate documentation, approvals, required audits, and compliance with funding restrictions and program income reporting requirements. These audits indicate the need for NSF to continue to 1) focus on post-award administration as a management challenge and 2) improve monitoring and oversight of its awards to ensure compliance with NSF award requirements and Federal regulations.

A summary of the results for these audits is provided below. All audit matters have been forwarded to NSF's Division of Contracts Policy, and Oversight for audit resolution.

Eastern Non-Profit Needs to Improve Controls and Compliance Procedures

We audited two NSF cooperative agreements issued to an eastern not-for-profit organization for \$104.6 million whose purpose is to promote and conduct geophysical investigations of the earth's interior and engage other organizations into exchanging information and knowledge in the earth sciences. We were unable to issue a clean opinion on the allowability of \$98.5 million in total claimed costs, because the organization did not:

- maintain records to support \$7.9 million in claimed costs for one full year under one NSF award;
- segregate and allocate direct and indirect costs properly as required by Federal cost principles; and
- maintain an adequate labor reporting system.

In addition, we also found that the organization did not: (1) have proper procedures in place to ensure adequate monitoring over \$48.3 million in funding provided to subrecipients; (2) account for program income properly or report this income to NSF as required; and (3) obtain NSF's prior approval for changes in its President's fringe benefit plan.

Subsequent to the audit, the organization reported to NSF that corrective actions had been taken to address our recommendation to (1) maintain documentation to support all claimed costs, (2) improve labor reporting procedures, and (3) revise accounting procedures to segregate and allocate direct and indirect costs as prescribed by Federal cost principles. The organization also stated that its new cooperative agreement with NSF does not consider the dues collected as program income. NSF's Office of Contract, Policy and Oversight will resolve all of these recommendations with the grantee.

Southern Consortium Claims \$313,978 Excessive Indirect Costs

NSF awarded a contract to a southern consortium to provide facilities and personnel for support and operation of the Graduate Research Fellowship Program. The contractor claimed costs and fees totaling \$12,406,857 under the contract. Our audit questioned \$313,978, or 20 percent, of the contractor's claimed indirect costs. We found that the contractor used provisional rates in the contract to bill NSF for indirect costs without adjusting its claim based on final indirect cost rates as required by Federal regulations and the contract agreement. We also found that the contractor failed to obtain audits for fiscal years 1993, 1994, 1999, and 2000, as required by OMB Circular A-133. We recommended that NSF direct the contractor to comply with the Federal audit requirements and to limit its claimed costs to just those that are allowed by contract terms and conditions. The contractor agreed with our finding for obtaining audits but disagreed with the amount of costs questioned.

Contractor Erroneously Uses Major Research Equipment Funds

To support its research work in Antarctica, NSF contracts with an outside company to provide the logistics, operations, engineering, and construction support for its United States Antarctic Program. In an audit of the former contractor, we found that the company had improperly used approximately \$11.9 million in Major Research Equipment (MRE) funds, restricted by NSF for capital construction expenditures, to pay for operations and contract closeout costs. The problem occurred because the contractor placed the MRE and operating funds in a single bank account, thereby losing its ability to observe the restriction on the MRE funds. NSF identified the problem during its contract closeout discussions.

To correct the error, the company returned to NSF \$15.4 million of MRE funds and other unspent funds remaining on the contract. Our audit subsequently found that the \$11.9 million the company spent for operations and contract closeout costs were valid and allowable costs under the contract. Based on this finding, NSF issued a contract modification to the company authorizing full NSF reimbursement to the company for these costs. To prevent future problems, we recommended that NSF direct the current contractor to maintain separate bank accounts for operations and MRE activity and develop procedures to ensure that funds are properly identified when withdrawn from NSF accounts. We also recommended that NSF establish internal control and oversight procedures to monitor contractor use of MRE and other types of funds obligated during the performance of the contract.

A-133 Related Reviews

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

During this reporting period, we reviewed 90 A-133 audit reports with NSF expenditures totaling \$438 million dollars for fiscal years 1997 through 2001. The majority of reports were for fiscal years ending in 2000 or 2001. Of the 90 reports, 41 identified questioned costs, internal control weaknesses, and/or non-compliance with Federal laws and regulations. In two reports, the auditors questioned \$128,463 of NSF-funded costs related to possible fraudulent travel claims and improperly transferred labor and tuition costs.

Our office also examined 43 Management Letters, which report internal control weaknesses that are generally less significant than those reported in the A-133 report. These letters discussed issues related to the adequacy of grantees' financial management systems, policies and procedures, as well as business continuity plans, information technology security and other IT issues.

Corrective Action Prompted by Previous Audit Findings

NSF Grant Terms Enforced by Courts in Two Separate Cases

In two recent court decisions, grantees that sued NSF to avoid reimbursing the government for costs improperly claimed were ordered to repay the disputed amounts.

The Office of General Counsel, the OIG and the Office of Budget, Finance and Award Management worked closely with the Department of Justice in the successful litigation of these cases, thereby ensuring that the grantees fulfilled their obligations under the grant agreement.

Court Orders Payment by University of \$139,152 in Questioned Cost Sharing.

In our March 1999 Semiannual Report (pp. 24-25), we reported on an audit of a University Foundation that found that the auditee could support only \$218,382 of the \$527,240 of claimed cost sharing. In April 1999, NSF sustained the audit finding and requested the Foundation repay \$145,622 of excess NSF funding it had received. The Foundation appealed the agency's decision through the NSF appeal process, where the repayment amount was reduced to \$139,152. Soon after NSF's appeal decision was issued, the Foundation sued NSF in the U.S. District Court.

The Court affirmed NSF's decision that the Foundation had failed to comply with the terms of its NSF grant and the Foundation was directed to refund \$139,152 to NSF. The District Court's decision was appealed by the Foundation. In January of this year, the Court of Appeals affirmed in a per curium opinion the District Court's conclusions of law:

"Like the district court, we are unable to find support for the Foundation's argument ... [The statutory standard advocated by the Foundation] simply does not speak to the fact that the Foundation contractually agreed to share costs in the amount of \$583,507, an amount that represented just over half of the estimated costs of the project. Nor does the Foundation argue that it satisfied its obligation in that regard. As a result of the Foundation's breach of its obligation to share costs in the amount of \$583,507, the agency sought a partial refund of the money it provided to the Foundation so that the final amounts expended by each party approximated the party's pro rata share as reflected in the award letter. As we see it, NSF was well within its contractual rights to seek that relief ... when the award letter unequivocally stated that as a condition of receiving the grant, the Foundation had to "agree to share in the costs of the project." ... [W]e affirm the district court's order granting summary judgment to NSF."

NSF Wins 8 Year Old Case to Force Repayment of Unsupported Costs. An audit of a grantee performed over a decade ago finally resulted in a decision by the U.S. Court of Federal Claims that the grantee must repay nearly \$50,000 to the Federal government. During the audit of a research grant awarded to a for-profit company, we reviewed \$146,761 in claimed costs, and questioned \$112,065 for lack of support. After the company provided some additional documentation, NSF issued a final notice to the company to repay \$46,171. However, in December 1994, the company filed a breach of contract complaint against NSF in the Court of Federal

Claims, to which NSF filed a counterclaim. As a result of the court's decision in January 2002, the company must repay \$46,902 to the government.

NSF Implements Most Past CFO Audit Recommendations

The FY 2001 financial statement audit reviewed the status of all open recommendations from management letters of prior years. NSF management implemented corrective actions that resulted in closing twenty of the twenty-three findings that were reported in the FY 2000 Management Letter, leaving only three recommendations open. While two are considered relatively minor, the third concerns the property management system maintained by NSF's United States Antarctic Program, which does not have a fully defined, tested and implemented information security program. NSF management has indicated that they have developed milestones to address the auditor's recommendations.

Midwestern Contractor Agrees to Repay \$229,627

In our September 2001 Semiannual Report (p. 18), we reported on an audit of a midwestern for-profit contractor that received three contracts to conduct surveys of scientific and engineering research facilities for NSF's Division of Science Resources Studies. We questioned \$337,589 or approximately 10 percent of the \$3.3 million in claimed costs because the contractor could not support expenses included in the indirect cost pool. This caused the final indirect cost rates to be overstated. In addition, we found an instance of material noncompliance with Federal regulations and material deficiencies in the contractor's internal control structure. NSF sustained \$229,627 of costs questioned in the audit report. The contractor agreed to repay the full amount.

International Grantee Strengthens Controls Over NSF Funds

In the September 2001 Semiannual Report (pp.7-8), we reported on our audit of an international research institute that for several years has received annual grants from NSF to support its research programs. We found that the institute's financial controls and oversight, by both its own governing council and the U.S. member organization, were inadequate to effectively safeguard NSF funds which were invested in

Audit staff visit international research institute.



speculative stocks. We recommended that NSF suspend funding to the institute until it had significantly strengthened those controls and management oversight. According to NSF, the institute has made operational improvements which are responsive to the audit recommendations. Continued funding for the institute is currently under review.

Southern College Must Reimburse NSF for Overpayment of \$387,471

In our September 2001 Semiannual Report (pp. 10-11), we reported the results of our review of \$2.6 million of costs claimed by a southern state university that received three Directorate for Education and Human Resources awards. The awardee promised to contribute a total of over \$15 million in cost sharing on its three NSF awards. We questioned costs totaling \$387,471 of which \$363,560 related to overpayment by the awardee to its subcontractors on the NSF award. We also reported several instances of material non-compliance with NSF award and Federal regulations. In audit resolution, NSF sustained the entire amount of \$387,471. The awardee has already initiated corrective action to ensure compliance with NSF award and Federal regulations in the areas of effort reporting, cost sharing, subcontract approvals, and monitoring and meeting funding targets specified in NSF awards.

Work in Progress

The following are a list of projects currently being performed or supervised by members of our audit staff. Upon completion, the results will be reported in future semiannuals:

Workforce Planning Activities

The Senate Subcommittee on VA, HUD, and Independent Agencies requested that the OIG analyze the adequacy of the agency's staffing and management plans in light of the efforts to expand NSF over the next five years. Our review will determine (1) to what extent NSF conducts workforce planning activities, (2) whether the agency's process is consistent with guidance provided for government agencies, and (3) what actions NSF is taking to improve its workforce planning activities and prepare for possibly significant increases in its budget. The results will be reported in our next Semiannual.

Antarctic Safety and Health Program

An audit of the Antarctic Safety and Health Program was initiated in the fall of 2001. The audit was prompted by our assessment of this activity as high-risk due

mainly to the harshness and remoteness of the environment. The effectiveness of the program will be evaluated primarily by checking compliance with the safety and health policies of the contractor as well as those of NSF. In addition, an expert in the field of remote medicine has been retained to advise our staff on the appropriateness of the current policies.

Award Administration Best Practices

Assessing scientific progress and ensuring effective financial and administrative management are critical elements in managing NSF's grant programs. To assist NSF in its efforts to address this management challenge, we are conducting a best practices review during this reporting period. We are surveying 6 to 10 grant-making organizations, both Federal and private, to document their management and oversight policies and practices. From this information, we will suggest best practices for NSF to consider for improving its award administration practices.

Urban School District Reviews

One of the primary efforts of the Directorate for Education and Human Resources through its Division of Educational System Reform (ESR) is to manage large-scale programs designed to strengthen the science, mathematics, and technology education infrastructure of urban centers. In fiscal year 1999, ESR established its Urban Systemic Program (USP) in science, mathematics, and technology education through the merger of two of ESR's existing efforts: the Urban Systemic Initiative (USI) Program and the Comprehensive Partnerships for Science and Mathematics Achievement. Through this combined effort, NSF seeks to stimulate interest, increase participation, improve achievement, and accelerate career advancement and success of all students of the participating urban school districts. In August 2000, ESR had 24 active USP/USI awards ranging in value from \$1.2 million to \$15.1 million. The estimated total value of the 24 active awards was approximately \$248.9 million. The annual NSF funding of USP/USI awards ranged from \$400,000 to \$3,000,000, with the awards' duration limited to five years.

Prior OIG audits of USI awards disclosed significant questioned costs, compliance problems, and internal control weaknesses. Specifically, from our analysis of seven USI awards audited in fiscal years 1997 through 2000, we found that the audits identified significant questioned costs in the areas of salaries and fringe benefits, subawards, and other costs. In addition, we identified problems related to the awardees meeting their cost sharing requirements and other compliance and internal control problems in each of the audits.

We believe that the USP/USI program continues to pose administrative risks for NSF given the large dollar value of each award and the significance of the problems we identified in our past audits. Therefore, we have initiated audits of six USI/USP awards that represent \$58.3 million of the \$248.9 million (23 percent) active USP/USI awards in August 2000. The objectives of the audits are to determine whether USP/USI awardees (1) have adequate systems to safeguard NSF funds, (2) properly account for expenditures under the award agreements, and (3) are in compliance with NSF and Federal rules and regulations and the terms and conditions of the award documents.

Audits of Community College Awardees

Community colleges historically have received approximately \$30 million to \$40 million in NSF funding. During past surveys and audits of community colleges, we identified higher than average questioned costs charged to the awards and improvements needed to ensure compliance with NSF and Federal requirements and internal controls.

In fiscal year 2001, we initiated audits of 13 community college awardees that had received 75 NSF awards totaling \$44.8 million. These audits include 17 NSF awards for various programs totaling \$29.7 million with proposed cost sharing of \$15 million. The community colleges received NSF awards from various NSF programs. The purpose of the audits is to determine whether the community colleges have adequate systems to safeguard NSF funds, account for payments and expenditures under the awards properly, and comply with NSF policies and the terms and conditions of the NSF awards.

The Office of Investigations handles allegations of fraud, waste, abuse, and mismanagement in NSF programs and operations, as well as allegations of research misconduct associated with NSF proposals and awards. We strive to work in partnership with agencies and awardee institutions to resolve issues whenever possible. As appropriate, we recommend administrative action to NSF's adjudicator, the Deputy Director, or refer our investigations to the Department of Justice or other prosecutorial authorities for criminal prosecution or civil litigation. In this Semiannual Report, we present an overview of investigative activities, including civil and criminal investigations, findings by the Deputy Director, significant administrative cases, and focused reviews. We also report on the implementation of NSF's revised research misconduct regulation and improvements to the investigative process.

Summary of Case Activity

Allegations of wrongdoing are classified according to the issues raised. Where there is insufficient evidence for initial classification, the matter may be handled as a preliminary case. During this semiannual period we received 98 allegations that were initially classified as: preliminary (49), administrative (35), or civil/criminal (14)¹ cases. We closed 36 preliminary cases after determining there was no reason to warrant re-classification. We closed 11 preliminary cases that were reclassified as administrative (8) or civil/criminal (3) cases.

We closed 16 civil/criminal cases that involved violations of Federal laws, such as false statements and embezzlement or theft. When we find evidence that suggests wrongdoing, we refer the case to the

¹ After initial review and fact-finding, preliminary cases are closed for either: 1) lack of evidence, 2) disproved allegations, 3) referral to management, or 4) re classification as administrative or civil/criminal cases. Administrative issues include research misconduct, employee misconduct; and cases that do not have indications of civil/criminal issues. Civil/criminal issues include fraud, theft, or violations of other Federal laws.

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Department of Justice (DOJ) for prosecution. We referred 6 cases this period to the DOJ. (See a description of selected criminal and civil cases we closed this period below.)

The majority of our closed administrative cases involved allegations of research misconduct. Under our research misconduct regulation, we initiate an inquiry to determine whether an allegation has sufficient substance to warrant an investigation. If it appears that research misconduct has occurred, we send a report to NSF's Deputy Director for adjudication. (See p. 46 for a description of selected administrative cases closed this period.)

Freedom of Information Act and Privacy Act Requests

Our office responds to requests for information contained in our files under the Freedom of Information Act ("FOIA," 5 U.S.C. § 552) and the Privacy Act (5 U.S.C. § 552a). During this reporting period, we received and responded to seven requests. Four were denied because the information requested could not be provided under FOIA. For example, we denied a request for all investigative records pertaining to a named individual based on FOIA exemptions (b)(6) and (b)(7)(c), which stipulate that information is not subject to disclosure if it would result in an unwarranted invasion of personal privacy. In addition, to become more responsive to FOIA requests, we are streamlining our procedures for responding to routine requests and developing web-based guidance for formulating a request.

Civil and Criminal Investigations

Social Security Numbers Stolen

Shortly after participating in an NSF awards conference held in Washington D.C., attendees filed complaints with NSF staff and the OIG that they were victims of identity theft. We coordinated our efforts with those of state law enforcement officials already underway, and we concluded that the victims' social security numbers (SSNs) were stolen through information they had provided to NSF as part of the registration process. The investigation disclosed that there were many with the opportunity to steal conference registration data, including NSF staff, a contractor, and a subcontractor. As a result of these thefts, the NSF funding program modified its procedures to ensure that in the future, the SSNs of all conference participants will be expunged from the event database. In addition, the program issued an advisory and apology to the conference attendees.

Identity theft and efforts to reduce the abuse of social security numbers are receiving increased attention by the IG community and GAO. In our September

1997 Semiannual Report (pp. 30-31), we discussed a case in which an NSF employee used another employee's SSN to obtain multiple fraudulent credit card accounts. In the course of that investigation, we learned that many NSF employees have easy access to the SSNs of NSF employees, PIs, and recipients of individual awards. We recommended that NSF minimize use of SSNs as identifiers. As a result, NSF issued a Policy Regarding Sensitive Information (NSF Bulletin No. 99-08) that provided NSF staff with instructions on the appropriate use and confidential handling of social security numbers. We are now urging NSF to undertake agency-wide implementation of stricter practices to prevent future SSN thefts.

Purchase Card Abuse

Like the concerns about identity theft, the inappropriate use of commercial purchase bankcards, part of the GSA SmartPay program, has been the subject of a recent OIG audit report, and several GAO reports. In 1989, purchase cards were made available to all Federal agencies, through a contract administered by GSA, for micro-purchases (below \$2500) of supplies or services. This program simplifies the purchasing and payment process and reduces the transaction cost associated with small acquisitions. At NSF, the purchase card is issued through the Bank of America, and the Division of Administrative Services administers the program. The primary participants are individual cardholders and approving officials designated by their organizational units.

In a recent case involving purchase card fraud, we received an allegation that an employee in NSF's Student Temporary Employment Program used a purchase card to make calls to chat rooms. The designated cardholder noticed the charges while reviewing the card statement. We determined that the employee had obtained the purchase card number while filing invoices for the cardholder. When presented with a termination letter by the Human Resources Division, the employee chose to resign. We referred the case to county police and the employee was arrested. NSF has been reimbursed \$1,553.53.

In October 2001, we reviewed a number of individual purchase card transactions to spot check for inappropriate use. We developed a list of fraud indicators for the review, including transactions that are unlikely to be related to NSF business (e.g., purchases at toy stores, clothing stores, and sports stores; credit card telephone calls, purchases at local shopping malls, cash advances or transactions and purchases on weekends and Federal holidays). To date, six purchase cards have been examined for questionable purchases. One case was closed after we confirmed the cardholder's purchases were justified and adequately documented. A second case was closed after the cardholder explained that a family member mistakenly completed a purchase at a local toy store with the NSF purchase card. The cardholder had immediately reported this purchase to the approving official and reimbursed NSF. We are continuing our review and have expanded its coverage using the Joint Fraud Task Force guidance.

Fraudulent Travel Claims Are Repaid

Travel fraud is characterized by the filing of false travel vouchers against NSF grant funds and constitute a criminal violation of Title 18 U.S.C. § 641, embezzlement and theft of government funds. We intend to increase investigative resources directed at the detection, investigation and prosecution of travel fraud. Two recent cases are described below:

A Texas university research foundation alleged submission of fraudulent travel claims by an employee of an NSF-supported Center. The university conducted an audit that disclosed eleven fraudulent claims submitted by the employee during fiscal years 2000-2001. As a result of these preliminary findings, a joint OIG-FBI investigation was initiated. The employee admitted to the offense and pled guilty to defrauding a program funded by NSF. As part of the plea agreement, the employee paid restitution in the amount of \$19,871.63 and faces a maximum of 10 years in Federal prison and a \$250,000 fine. Sentencing is scheduled to occur during the next semiannual period.

In our September 2000 Semiannual Report (p. 32), we discussed the case of two geology professors at a Florida university who filed false and duplicative travel claims. The fraudulent claims requested reimbursement for international travel wholly unrelated to their grants, and time and expenses for which they also obtained reimbursement as consultants to a company. The geologists also failed to disclose financial interests in their closely related consulting activities, as required by their university's financial disclosure policy. An audit of the awards by the university identified \$71,277.65 in unallowable expenditures. Although Federal and local prosecutors declined the case for prosecution, the university refunded the full amount to the Federal government. In light of their repayment, and having received credible written commitments from the geologists to comply with Federal requirements regarding disclosure of conflict-of-interests information and expenditure of grant funds, we determined that it was unnecessary to pursue further administrative actions against them.

Support Staff's Fraudulent Payroll Scheme Affects Four Agencies

A Rhode Island university notified us of payroll irregularities involving an NSF grant. According to a formal report, an internal audit discovered that an administrative assistant fraudulently endorsed and cashed 40 payroll checks payable to former temporary employees between July 1999 and November 2000. Four Federal agencies were affected by this scheme, for a total of \$50,484.61. The university corrected the payroll records and removed all associated charges from the grant accounts. According to the audit report, the employee fraudulently diverted \$14,599.20 in NSF funds. The university completely reimbursed the misappropriated funds to the NSF grant.

When confronted with the allegations and preliminary findings, the employee wrote an apology and immediately resigned. The former employee subsequently reimbursed the university, and the Assistant U.S. Attorney declined to prosecute this case. However, because financial fraud was committed against four Federal agencies, and to protect the interests of the Government, we have recommended Federal debarment for a period of two years.

Scientists Plead Guilty to Submitting False and Duplicative SBIR Documents in Two Cases

In our September 2001 Semiannual Report (pp. 41-42), we discussed a case in which a bioengineering professor at a South Carolina university submitted a fraudulent final report for an NSF Small Business Innovation Research (SBIR) Phase I grant to his wife's private company. The report was essentially copied verbatim from a Master's thesis written by one of the professor's students before the grant was awarded, reflecting the fact that no work was actually performed by the company under the award. All of the \$99,300 of grant funds were either paid directly to the professor and his wife or used to pay personal expenses such as college tuition for their son. On the basis of the Phase I final report, NSF funded a proposal for follow-on work. We recommended that NSF suspend the Phase II grant, and the professor subsequently repaid \$198,975 to NSF and made an unrestricted donation to NSF of \$27,500. We referred the case to the Department of Justice, which accepted it for criminal prosecution.



The PI and her spouse used SBIR grant funds to pay themselves for non-existent work, rent a non-existent lab, and pay for their son's college tuition.

On February 25, 2002, the professor pled guilty in U.S. District Court to one count of violation of 18 USC §1001 for submission of false information to the Federal government. Sentencing will follow the preparation of a presentencing report by the Department of Justice. Immediately following the guilty plea, the professor entered into an administrative settlement with NSF in which he agreed to be voluntarily excluded from participating in grants or contracts with the Federal government until October 1, 2004. The professor's wife dissolved the company that received the SBIR grant, and no action was taken against her.

In our March 1998 Semiannual Report (pp. 21-22), we discussed the case of a California company that submitted duplicative SBIR proposals to NASA and NSF. The U.S. Attorney's Office for the Northern District of California sued the company under the False Claims Act. The lawsuit primarily alleged that the company, which was engaged in the business of conducting laser research, submitted substantially similar or equivalent grant proposals to NSF and NASA, and obtained funding from each agency to conduct the same research. At the conclusion of the research, the company submitted virtually identical final reports in order to receive \$49,618 in final grant payments. During this semiannual period, the company agreed to a settlement in which it repaid \$25,000 to the government. The company also agreed that in all proposals for Federal grants and contracts, it will fully and truthfully provide information to the funding agency about similar or overlapping proposals submitted and awards received, and it will ensure that it does not receive funding for essentially equivalent or substantially similar work.

Conflict of Interest Concerns Lead to Investigation of NSF-Supported Center

In our September 2001 Semiannual Report (pp. 27-28), we discussed audit findings of irregularities in claims of industrial support at an NSF-supported Center. Concurrent with the audit, we investigated whether the exaggerated claims constituted violations of law. We also investigated the Center director's financial interest in a spin-off company to assess whether his failure to report that interest constituted a fraudulent omission.

We determined that the exaggerated claims in the Center reports to NSF likely resulted from a combination of profound sloppiness by the director and significant ambiguity in NSF's reporting requirements for these Centers. (The Center director has since been replaced, and NSF has revised and clarified its reporting requirements.) We also found that there was no conflict of interests between the director, the Center, and the spun-off company. Accordingly, we recommended that the U.S. Attorney's Office decline to file suit. Having received credible written commitments from the former director to comply with Federal requirements, or providing truthful and accurate information in written representations to NSF, along with disclosure of financial interests pursuant to his institution's conflict-of-interest policy, we determined that it was unnecessary to pursue further administrative actions against him.

In our March 1999 Semiannual Report (p. 22) we described another case in which an ERC director had misrepresented the amount of industrial participation in annual reports to NSF. The director in that case pled guilty to a criminal charge for providing false information to the Federal government and served 3 months in prison. There were two important differences between that case and this one. In that case there was a pattern over several years of increasingly exaggerated claims of industrial participation, especially at renewal time, eventually reaching nearly 50 percent. That

ERC also had a history of troubled management and marginal scientific accomplishments, such that if NSF had been aware of the true level of industrial participation, it would not have renewed funding to that ERC. In contrast, the Center described above was highly successful, and the level of exaggerated industrial support was significantly less and followed no apparent pattern.

Institution Reimburses NSF for Faculty Time

A Wisconsin university notified us of financial improprieties by a physics professor who had been the principal investigator (PI) on several NSF grants. He had taken a leave of absence from the Wisconsin university to pursue research at a university in Hong Kong. However, when he ostensibly returned to the Wisconsin university full-time, he continued as a full-time employee of the Hong Kong University. He traveled frequently between Wisconsin and Hong Kong, and insisted he was able to fulfill the demands of both full-time positions simultaneously. While in Hong Kong, he continued to expend funds from his NSF grants as well as other Federal awards.

As a result of the Wisconsin university's audit, the PI resigned and subsequently obtained full-time employment at another Hong Kong university. We asked the Wisconsin university to assess the extent to which his expenditures from his NSF and other Federal awards were consistent with applicable cost principles set out in OMB Circular A-21. The university determined that the PI mischarged \$8,315.72 to his NSF grants and \$24,026.65 to his Department of Energy (DOE) grant. The NSF grants were closed, so the university agreed to repay the funds to NSF. Because the DOE grant was still active under a different PI, the university agreed to credit the mischarged amount to the DOE grant.

Awardee Institutions Should Notify NSF of Financial Improprieties in a Timely Manner

PIs under NSF research grants have broad discretion to “pursue interesting and important leads which may arise . . . or to adopt an alternative approach which appears to be a more promising means of achieving the objectives of the project” without notifying or seeking approval from NSF. [NSF's Grant Policy Manual 311.2.] In contrast, awardee institutions are subject to broad notification requirements when problems arise with grant administration or expenditure of the grant funds. NSF's Grant General Conditions emphasize that the “awardee has full responsibility for the conduct of the project or activity supported under this award and for adherence to the award conditions.” [GC-1 Art. 1.a.] OMB Circular A-110 requires that awardees “immediately notify the Federal awarding agency of developments that have a significant impact on the award-supported activities . . . [including] problems, delays or adverse conditions which materially impair the ability to meet the objectives of the award.”

At the awardee institution, scientific, administrative, and financial judgments are variously made by the PI, Co-PIs, post-doctorate students, graduate students, the institution's Authorized Organizational Representative, and other administrative personnel. Serious scientific, financial, or administrative wrongdoing by any of these individuals is of great interest to NSF because it might impair the achievement of the grant objectives, or constitute research misconduct or violations of Federal civil or criminal laws. However, our recent experience has shown that awardee institutions may not always be notifying NSF about significant administrative or financial problems related to their NSF grants or may unduly delay notification. Two matters that were finally resolved in this semiannual period may serve to illustrate this.

In one matter, the PI on an NSF conference grant violated grant conditions regarding competition, conflicts of interests, and program income, and may have committed fraud. By the time the awardee university completed its audit, followed by protracted settlement negotiations with the PI, five years had passed. We found out about the matter only when the university contacted NSF to obtain approval to expend the recovered funds on related activities. By that time, the relevant statutes of limitations had lapsed, precluding civil or criminal action against the PI.

In another matter, a U.S. university discovered that one of its professors, who was the PI on grants from NSF as well as DOE and DOD, had a concurrent full-time position at a foreign university (see p. 45). Although the university had serious concerns about the professor's possibly fraudulent use of his Federal grant funds, it did not notify NSF until after it had completed a full audit and threatened the professor with disciplinary action. By the time we learned of the case, the professor had resigned and permanently left the U.S., precluding taking civil or criminal action against him.

While both of these institutions (and numerous others we have encountered) eventually notified NSF, both delayed doing so until the circumstances prevented our office from conducting an investigation in a timely manner to ensure protection of the Federal government's interests. While we believe that most awardee institutions endeavor to inform NSF of instances of serious non-compliance in a timely manner, if we continue to encounter instances of significant noncompliance with the notification requirement, we will encourage NSF to consider implementing a more stringent notification policy.

Administrative Investigations

NSF Issues Revised Research Misconduct Policy

The Office of Science and Technology Policy (OSTP) issued a final Federal research misconduct policy on December 6, 2000 in 65 FR 76260-76264 (see March

2001 Semiannual Report, p. 39). This policy defines research misconduct, provides guidelines for responding to allegations, and directs Federal agencies that support or conduct research to implement the policy. To facilitate implementation of the policy government-wide, we are continuing to work with OSTP's Interagency Research Misconduct Policy Implementation Group. We have also worked closely with NSF, providing numerous recommendations as the agency drafted its new misconduct regulation. NSF's final rule was published in 67 FR 11936-11939 on March 18, 2002, and is effective April 17, 2002.

Our office has continued to lead the IG community in the effort to implement the Federal Policy on Research Misconduct. Through the PCIE/ECIE Misconduct in Research Working Group, we have made presentations to the IG community and have assisted individual OIGs in implementing the new policy. At the next Working Group meeting, we will focus on techniques for resolving cases that commingle fraud and research misconduct allegations and develop a plan for evaluating agency investigative efforts.

Misconduct in Science Findings by the Deputy Director

Plagiarism Cited in 2 Findings of Misconduct in Science. In our March 2001 Semiannual Report (p. 27), we discussed the case of a biologist at a Washington institution who plagiarized material from another scientist's proposal. Consistent with our recommendations, NSF's Deputy Director issued a finding of misconduct in science. The Deputy Director reprimanded the biologist and imposed a two-year certification requirement. During this period, the biologist must certify to OIG that any documents he submits to NSF contains no plagiarized material.

In our September 2001 Semiannual Report (p. 34), we discussed the case of a scientist employed by a small business in Ohio who plagiarized material for a Small Business Innovation Research (SBIR) proposal. Consistent with our recommendations, NSF's Deputy Director issued a finding of misconduct in science. The Deputy Director reprimanded the scientist and imposed a one-year certification requirement.

Falsification of Data Leads to Delay in Doctoral Degree. In our March 2001 Semiannual Report (p. 26), we discussed the case of a chemistry doctoral candidate at an California state university who falsified data in research supported by NSF. The university placed a letter of reprimand in the chemist's student file, directed him to revise and resubmit his thesis, and delayed the award of his doctoral degree by one year. Consistent with our recommendations, NSF's Deputy Director issued a finding of misconduct in science and sent the chemist a letter of reprimand.

Significant Administrative Cases

University Requirement Inconsistent with Human Subject Protections. We received a complaint that a southwestern university required doctoral candidates to complete the Survey of Earned Doctorates (SED) prior to scheduling a dissertation defense. The SED is a research instrument sponsored by NSF and five other Federal agencies to which the Common Rule for the protection of human subjects applies (45 CFR part 690). As required by the informed consent clause of this policy, instructions for the SED clearly state that the survey is voluntary and that failure to complete the survey will not result in any adverse consequences. Any institutional requirement to complete the survey would contradict the SED instructions and violate the Common Rule.

We contacted the institution to request an explanation. According to the institution, the mandatory requirement appeared to be a long-standing policy that had gone unnoticed and unchanged because no student had previously complained. The institution consulted with their legal office and promptly changed their policy so that graduate students are no longer required to complete the survey. Because the SED has a very high response rate, we intend to determine whether other universities' long-standing policies, though well-intended, may be in violation of the Common Rule.

Professor Barred from Seeking Funds Due to Careless Proposal Preparation. We received multiple allegations of misconduct in science against two chemistry professors at a Florida public university. In a proposal submitted to NSF, the chemists allegedly plagiarized material, fabricated biographical sketches, and made false statements concerning the activities of a research center. We determined that there was sufficient substance to the allegation to warrant an investigation and deferred to the institution's request to conduct its own.

The university's investigation committee determined that the NSF proposal was derived from a declined proposal submitted to another agency in 1991. Because one of the chemists was a co-PI on that proposal, the committee judged that the chemist had the right to reuse the text. The committee further determined that the two questioned biographical sketches were constructed without the knowledge of the affected researchers from information on their faculty webpages. Although the committee found this action to be poor scholarly procedure, the fact that the two researchers did not feel harmed by this action mitigated the circumstance. Finally, the committee determined that the "current research activity" section of the NSF proposal had been copied from the 1991 proposal without being updated. Overall, the university investigation committee found these actions to be extremely poor practice but determined that they fell short of misconduct in science.

The university committee forwarded their report to us and to the university Provost. The Provost sanctioned the two professors for poor scholarly conduct. He sent a letter of reprimand to both professors and directed that neither be allowed to submit research proposals to outside agencies for a period of one year. We reviewed the university report and concurred with its conclusions. We also found that the Provost's actions were reasonable and justifiable within the university's misconduct in science regulations. These actions adequately protected the interests of the Federal Government. We therefore closed this case and intend to take no further action.

False Assurances Lead to Suspension of Grant Funds. In our September 2001 Semiannual Report (pp. 36-37), we described animal welfare issues at a small college in Wisconsin. This case was resolved when the college agreed to establish an Institutional Animal Care and Use Committee to oversee projects that use animals. In a second case involving another Wisconsin institution, we determined that a public university received an NSF award based on a false assurance that the proposed vertebrate animal experiments had been reviewed and approved by its Institutional Animal Care and Use Committee. During the course of our review, NSF suspended funding for the vertebrate animal research in the award and ceased processing the proposal. NSF worked with the institution to develop a Special Project Assurance and ultimately lifted its suspension of funding for the research and funded the proposal.

Based on the false assurances provided by the institution, we recommend that for the next three years, NSF require the institution to provide a statement with each submitted proposal that it has a formal mechanism for ensuring compliance with relevant Federal regulations, and that trained faculty and staff are responsible for the administration and conduct of Federal grants. Additionally, we recommend that the institution be required to provide annual reports describing actions it has taken in connection with the vertebrate animal research supported by NSF, its efforts to ensure compliance with the requirements of NSF's Grant Policy Manual and Grant General Conditions, the results of any state or Federal inspection of its facilities, and its responses to any recommendations made in connection with those inspections.

Fabrication Inquiry Underscores Need for Accurate Record Keeping. We received an allegation that a biologist at an Ohio university fabricated experimental results in a proposal submitted to NIH and an updated proposal submitted to NSF. We contacted the university, who requested that we defer our inquiry while they conducted their own. The biologist testified before the committee that on the basis of verbal communication with a student in his lab, he mistakenly believed that a certain experiment had been conducted and had incorporated a statement to that effect in his proposal materials. The committee found no evidence to contradict this account. In particular, the student's laboratory notebook (a word processing file) was incomplete and did not provide reliable evidence of events in the laboratory. The committee concluded that the evidence was insufficient to sustain the allegation of fabrication. After receiving the committee's report, we undertook our own forensic

linguistic analysis of the student's lab notebook. This analysis indicated that critical entries were missing and that other entries had been edited months after the events. We accepted the university's report and concurred with its conclusion.

In our notification to the biologist, we brought to his attention a relevant case with a different outcome, described in our September 1997 (pp. 36-37) and March 1999 (p. 19) Semiannual Reports. In that case, a scientist claimed that in making certain statements in his proposal, he had relied on oral communications with a graduate student in his lab. He admitted that he took no steps to verify the accuracy of his understanding of the experimental results. The university's investigation committee found that reliance on oral communication of results was not acceptable scientific practice. One outcome of this case was a finding of misconduct in science. Although this was a more complex case with multiple issues, such cases underline the importance of good research and mentoring practices in the laboratory, including scrupulous record keeping.

Other Investigative Activities

Researcher Fails to Report Program Income

In our September 2001 Semiannual Report (pp. 42-43), we reported that a New Mexico professor of mechanical engineering failed to properly account for program income resulting from conference registration fees, improperly spent NSF funds, and violated conflict-of-interest rules in the planning and implementation of an NSF-sponsored conference. Because of the seriousness of the violations, and the fact that the university had failed to audit this award for nearly 3 years, we requested confirmation that every pending NSF proposal and award complied with all applicable Federal policies, particularly the provisions addressing competition and conflicts of interests in procurement. We also asked the university to identify any NSF proposals or awards that may generate program income.

In response to our concerns, the university sent a survey to all PIs requesting disclosure of any current or planned program income. The university's Contract and Grant Accounting Office also independently reviewed all NSF accounts to identify any accounts with the potential for generating program income, such as projects that involved conferences, participant travel and additional participant costs. The university notified us recently that its survey indicates no instances of program income not previously disclosed. As a result of these actions, the university has created a task force to produce a series of required program income training modules for NSF PIs, along with orientation programs for new NSF PIs.

Improvements to Our Investigative Process

Forms Revision and Professional Training. During this semiannual period, we took steps to streamline and improve the investigative operations of our office in preparation for peer review:

- We consolidated case forms, updated existing forms, and implemented a forms numbering system.
- We are in the process of revising our investigations manual to accurately reflect new or modified procedures.
- We also identified five categories of training for investigative staff. All our investigators must complete, as appropriate, either the Basic Criminal Investigator Training Program or the Basic Non-Criminal Investigator Training Program taught by the Inspector General Academy at the Federal Law Enforcement Training Center. Investigators must also complete training in interviewing techniques, grant fraud, financial fraud (including basic auditing skills), and legal issues.

Preparations for Peer Review. The Investigations Committee of the President's Council on Integrity and Efficiency (PCIE) and the Executive Council on Integrity and Efficiency (ECIE) issued a Draft Guide for Conducting Qualitative Assessment Reviews of the Investigative Operations of the Offices of Inspectors General. The Guide proposes standards to be used in implementing a peer review of investigative offices. As a member of the ECIE, we support the need for a peer review process and plan to participate fully in its implementation. We are currently conducting an internal review of our investigations program based on the Guide and plan to submit a report to the PCIE/ECIE Investigations Committee by April 30, 2002 detailing our efforts and suggesting any improvements to the Guide prompted by our internal review.

Implementation of Process for Referrals to NSF Management. From time to time, we receive allegations that NSF personnel have engaged in wrongful conduct. While some of these matters require investigation by our office, NSF personnel officials and/or program managers may best handle others. During this semiannual period, we worked with NSF's Human Resource Management Division (HRM) to establish a procedure for handling allegations we receive that are more efficiently and reasonably handled by HRM or the NSF management. This procedure has resulted in the effective assessment and resolution of such allegations.

Developing a Grant Fraud Indicators System. As discussed in our September 2001 Semiannual Report (p. 45), we created a checklist of grant fraud indicators to enhance our ability to detect grant fraud by identifying its risk factors. We are now developing a pilot project to measure the effectiveness of the indicators. This pilot project, a joint endeavor by the Office of Investigations and the Office of Audit, will involve sharing detailed information relative to the presence of fraud indicators in audits performed or supervised by our office. We plan to implement the pilot project during the upcoming semiannual period.

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Reporting Terms Defined

Some of the more common terms that we use in reporting audit statistics and findings are defined below:

Questioned Cost. Auditors question costs because of an alleged violation of a provision of a law, regulation, grant, cooperative agreement, or contract. In addition, a questioned cost may be a finding in which, at the time of the audit, either a cost is not supported by adequate documentation, or the expenditure of funds for the intended purpose is deemed unnecessary or unreasonable.

Unsupported Cost. A cost that is questioned because it is not supported by adequate documentation at the time of audit.

At-Risk Cost Sharing. Cost sharing is identified as “at risk” if an awardee is lagging in meeting its cost-sharing obligation for an award that is still active. In some situations, the awardee may purport to be funding its obligation but lacks internal controls and documentation to support its claim, making it difficult to determine their allowability under federal cost principles.

Management Decision. Management’s evaluation of the findings and recommendations included in the audit report and the issuance of a final decision by management containing its response to such findings and recommendations. It is important to note that NSF is responsible for making a management decision regarding questioned costs that determines whether they will be sustained (i.e., disallowed) or allowed.

Funds Put to Better Use. Audit recommendations that identify ways to improve the efficiency of programs frequently lead to prospective benefits over the life of an award or funds put to better use. Examples include reducing outlays, deobligating funds, or avoiding unnecessary expenditures.

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

Compliance or Internal Control Issues. Audits often result in recommendations either to improve the auditee’s compliance with NSF and federal regulations, or to strengthen the auditee’s internal control structure to safeguard federal funds from fraud, waste, abuse, and mismanagement.

Audit Reports Issued With Recommendations for Better Use of Funds

	Dollar Value
A. For which no management decision has been made by the commencement of the reporting period	\$50,000
B. Recommendations that were issued during the reporting period	\$0
C. Adjustments related to prior recommendations	0
Subtotal of A+B+C	\$50,000
D. For which a management decision was made during the reporting period	\$50,000
i) Dollar value of management decisions that were consistent with OIG recommendations	\$50,000
ii) Dollar value of recommendations that were not agreed to by management	0
E. For which no management decision had been made by the end of the reporting period	0
For which no management decision was made within 6 months of issuance	0

Audit Reports Issued with Questioned Costs

	Number of Reports	Questioned Costs	Unsupported Costs
A. For which no management decision has been made by the commencement of the reporting period	13	\$5,389,095	\$3,294,455
B. That were issued during the reporting period	10	\$576,036	\$0
C. Adjustment related to prior recommendations		\$0	\$0
Subtotal of A+B+C	23	\$5,965,131	\$3,294,455
D. For which a management decision was made during the reporting period	14	\$4,653,588	\$3,273,159
i) dollar value of disallowed costs	N/A	\$940,564	N/A
ii) dollar value of costs not disallowed	N/A	\$3,713,024	N/A
E. For which no management decision had been made by the end of the reporting period	9	\$1,311,543	\$21,296
For which no management decision was made within 6 months of issuance	2	\$864,834	\$21,296

Audit Reports Involving Cost-Sharing Shortfalls

	Number of Reports	Cost-Sharing Promised	At Risk of Cost Sharing Shortfall (Ongoing Project)	Actual Cost Sharing Shortfalls (Completed Project)
A. Reports with monetary findings for which no management decision has been made by the beginning of the reporting period:	3	\$9,967,398	\$0	\$194,125
B. Reports with monetary findings that were issued during the reporting period:	4	\$13,578,398	\$1,406,881	\$20,665
C. Adjustments related to prior recommendations	0	0	0	0
Total of Reports with Cost Sharing Findings (A+B+C)	7	\$23,545,796	\$1,406,881	\$214,790
D. For which a management decision was made during the reporting period:	4	\$17,446,359	\$0	\$194,989
1. Dollar value of cost-sharing shortfall that grantee agreed to provide.	N/A	N/A	\$0	\$103,523
2. Dollar value of cost-sharing shortfall that management waived	N/A	N/A	\$0	\$91,466
E. Reports with monetary findings for which no management decision has been made by the end of the reporting period.	3	\$6,099,437	\$1,406,881	\$19,801

Status of Internal NSF Recommendations

Open Recommendations (as of 3/31/02)	
Recommendations Open at the Beginning of the Reporting Period	86
New Recommendations Made During Reporting Period	0
Total Recommendations to be Addressed	86
Management Resolution of Recommendations ²	
Awaiting Resolution	11
Resolved Consistent With OIG Recommendations	75
Management Decision That No Action is Required	0
Final Action on OIG Recommendations ³	
Final Action Completed	60
Recommendations Open at End of Period	26
Aging of Open Recommendations	
Awaiting Management Resolution	
0 through 6 months	0
7 through 12 months	11
More than 12 months	0
Awaiting Final Action After Resolution	
0 through 6 months	1
7 through 12 months	8
13 through 18 months	6

² "Management Resolution" occurs when the OIG and NSF management agree on the corrective action plan that will be implemented in response to the audit recommendations.

³ "Final Action" occurs when management has completed all actions it agreed to in the corrective action plan.

List of Reports

NSF and CPA Performed Reviews

Report Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds	Cost Sharing At-Risk
02-1001	Midwest university	\$48,408	\$0	\$0	\$0
02-1002	West coast university	\$864	\$0	\$0	\$416,826
02-1003	West coast university assoc.	\$19,426	\$0	\$0	\$522,025
02-1004	Western university	\$375	\$0	\$0	\$0
02-1005	Research support company	\$23,821	\$0	\$0	\$0
02-1007	University association	\$313,978	\$0	\$0	\$0
02-1008	Research institute	\$0	\$0	\$0	\$0
02-1009	College in midwest	\$0	\$0	\$0	\$461,740
02-1010	College in midwest	\$1,405	\$0	\$0	\$0
02-1011	Midwest university	\$0	\$0	\$0	\$0
02-1012	Technical college	\$39,296	\$0	\$0	\$0
02-1013	Research support company	\$0	\$0	\$0	\$0
02-2001	Major research project	\$0	\$0	\$0	\$0
02-2002	Annual NSF Report	\$0	\$0	\$0	\$0
02-2003	NSF internal report	\$0	\$0	\$0	\$0
02-2004	NSF internal report	\$0	\$0	\$0	\$0
02-2005	NSF internal report	\$0	\$0	\$0	\$0
02-6001	Trade association	\$0	\$0	\$0	\$0
02-6002	Communications company	\$0	\$0	\$0	\$0
	Total:	\$447,573	\$0	\$0	\$1,400,591

NSF-Cognizant Reports

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
02-4001	College association	\$0	\$0	\$0
02-4002	Educational association	\$0	\$0	\$0
02-4003	Research organization	\$0	\$0	\$0
02-4004	Communications foundation	\$0	\$0	\$0
02-4005	Research institute	\$0	\$0	\$0
02-4007	Non-profit organization	\$0	\$0	\$0
02-4008	Non-profit organization	\$0	\$0	\$0
02-4009	Non-profit organization	\$0	\$0	\$0
	Total:	\$0	\$0	\$0

Other Federal Audits

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
02-5009	Technological institute	\$95,338	\$0	\$0
02-5023	Research Foundation	\$33,125	\$0	\$0
	Total	\$128,463	\$0	\$0

Audit Reports With Outstanding Management Decisions

This section identifies audit reports involving questioned costs, funds put to better use, and cost sharing at risk where management had not made a final decision on the corrective action necessary for report resolution with 6 months of the report's issue date. At the end of the reporting period there were two reports remaining that meet this condition. Both of these reports involve questioned costs, totaling \$864,834. The status of recommendations that involve internal NSF management is described on page 58.

Investigations Case Activity

October 1, 2001 - March 31, 2002

	Preliminary	Civil/Criminal	Administrative
Active Cases (From Previous Reporting Period)	8	29	26
New Cases	49	17	43
Closed Cases	47	16	38
Active Cases	10	30	31

Investigations Case Statistics

New Referrals	3
Criminal Convictions/Pleas	2
Civil Settlements	2
Administrative Actions	0
Investigative Recoveries ⁴	\$229,828

⁴Investigative recoveries include civil penalties, criminal fines, and funds paid in restitution, as well as specific cost savings for the government.

Administrative Activity And Assurance/Certifications Received

Findings by NSF	3
Cases Forwarded to the Office of the Director for Adjudication	2
Cases Reported in Prior Periods With No Adjudication by the Office of the Director	1 ⁵
Number of Debarments in Effect During This Period	3
Assurances and Certifications Received ⁶	
Number of Cases Requiring Assurances During This Period	6
Number of Cases Requiring Certifications During This Period	7
Assurances Received During This Period	4
Certifications Received During This Period	0

⁵ This case is described in our September 2001 Semiannual Report (page 35).

⁶ 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 OIG 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. These certifications and assurances remain in OIG and are not known to, or available to, NSF program officials. In one case not involving misconduct in science, described in our September 2000 Report (page 26), NSF required the subject and his institution to submit to the appropriate NSF program an assurance of compliance with appropriate requirements and procedures with any proposal involving biohazardous research.

Reporting Requirements

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

Reports issued, significant problems identified, the value of questioned costs and recommendations that funds be put to better use, and NSF's decisions in response (or, if none, an explanation of why and a desired timetable for such decisions). (See p. 5-6, 53)

Matters referred to prosecutors, and the resulting prosecutions and convictions. (See p. 39, 62)

Revisions to significant management decisions on previously reported recommendations, and significant recommendations for which NSF has not completed its response. (See p. 58, 61)

Legislation and regulations that may affect the efficiency or integrity of NSF's programs. (See p. 10)

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

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

AC	Advisory Committee
AOR	Authorized Organizational Representative
CAARB	Cost Analysis and Audit Resolution Branch
CFR	Code of Federal Regulations
CFO Act	Chief Financial Officers Act of 1990
CIRT	Computer Incident Response Team
COI	Conflict of Interest
CPO	Division of Contracts, Policy and Oversight
COV	Committee of Visitors
DCAA	Defense Contract Audit Agency
DFE	Designated Federal Entity
DGA	Division of Grants and Agreements
DOD	Department of Defense
DOE	Department of Energy
DOJ	Department of Justice
ECIE	Executive Council of Integrity and Efficiency
EHR	Directorate for Education and Human Resources
ERC	Energy Research Center
ESR	Division of Educational System Reform
FBI	Federal Bureau of Investigation
FedCIRC	Federal Computer Incident Response Center
FOIA	Freedom of Information Act
GAO	General Accounting Office
GISRA	Government Information Security Act
GPRA	Government Performance and Results Act
GSA	General Services Administration
HUD	Department of Housing and Urban Development
HRM	Human Resource Management Division
IG	Inspector General
MPS	Directorate for Mathematics and Physical Sciences
MRE	Major Research Equipment
NAPA	National Academy of Public Administration
NASA	National Aeronautics and Space Administration
NIH	National Institute of Health
NSB	National Science Board
NSF	National Science Foundation
ODP	Ocean Drilling Program
OIG	Office of Inspector General
OMB	Office of Management and Budget
OPP	Office of Polar Programs

OSTP	Office of Science and Technology Policy
PCIE	President's Council on Integrity and Efficiency
PI	Principal Investigator
PFCRA	Program Fraud Civil Remedies Act
R&D	Research and Development
SBIR	Small Business Innovation Research
SED	Survey of Earned Doctorates
SSN	Social Security Number
USAP	United States Antarctic Program
USI	Urban Systemic Initiative
USP	Urban Systemic Program
VA	Veterans Administration

Organization Chart

