

Semiannual Report to the Congress

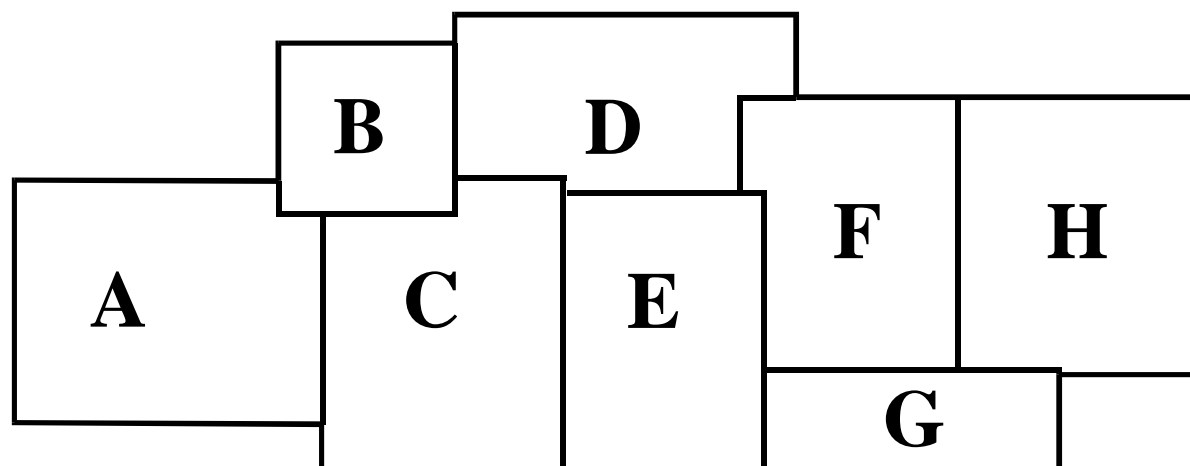


MARCH 2000



Office of Inspector General
National Science Foundation

Cover Photographs and Credits



- A** Sea urchin from the Pacific Coast of North America.
Credit: *Michigan State University*
- B** An agitator in a biochemical reactor.
Credit: *National Science Foundation*
- C** This image shows a portion of a prototype mass spectrometer developed and constructed in the laboratory of Professor Brian T. Chait at Rockefeller University. Today, this type of instrument is produced by several different commercial manufacturers and is widely used to analyze biopolymers such as peptides, proteins, oligosaccharides, and oligonucleic acids.
Credit: *Brian T. Chait, Rockefeller University*
- D** Jellyfish (Pegea Socia)
Credit: *Woods Hole Oceanographic Institution*
- E** One of the resonators from the Argonne Tandem Linear Accelerator System
Credit: *Argonne National Laboratory*
- F** A view of the Milky Way in the direction of its center. This image was taken at the Cerro Tololo Inter-American Observatory in Chili.
Credit: *National Optical Astronomy Observatory*
- G** A view of Kitt Peak Observatory, located near Tucson, Arizona.
Credit: *National Science Foundation*
- H** Viper Telescope at NSF's Amundsen-Scott South Pole Station.
Credit: *Greg Griffin*

The March 2000 Semiannual Report (22) to the U.S. Congress was designed and edited by Belinda M. Robinson, Writer/Editor, for NSF's Office of Inspector General. Ms. Robinson is currently a Doctoral candidate at NOVA Southeastern's School of Business and Entrepreneurship in Fort Lauderdale, Florida.

Letter to the Congress of the United States



March
2000

This Semiannual Report to the Congress is my first as Inspector General of the National Science Foundation (NSF). The report describes the accomplishments of the Office of Inspector General (OIG) over the past 6 months. These results are achieved by employees dedicated to improving government by assuring efficiency and integrity in NSF's portfolio of programs.

As we enter the 21st century, NSF is celebrating its 50th year as a catalyst for scientific and engineering research, and for innovations in science education programs. NSF remains the sole federal agency to support basic research, and science and education programs throughout all levels. NSF seeks out and funds the best research ideas from a diverse, capable group of people to pursue discoveries and new knowledge. NSF also invests in major scientific research equipment. These state-of-the-art tools enable U.S. scientists and engineers to advance world-class research essential for new discoveries across the frontier of science and engineering.

During this reporting period, we continued our work with NSF management to improve the efficiency and integrity of its programs. Highlights of this report include:

Our audit of NSF's agency-wide financial statements for FY 1999 conducted by KPMG resulted in an unqualified opinion, delivered 6 weeks ahead of the mandated March 1st reporting date. There were no material weaknesses and no material noncompliance. Issues involving property, plant, and equipment used in the U.S. Antarctic Program, as well as NSF's data processing system and information system controls, are being addressed by NSF management.

While performing an audit of a major NSF research project, we identified a need for the NSF to reconsider its policy for delegating authority for approving additional funding for large capital projects—specifically, given the size, importance and complexity of these projects. We suggested that NSF management reconsider how authority for additional funds on capital project awards are handled.

We continued to refine our outreach and liaison programs, which are becoming an effective means of receiving feedback and educating the scientific and engineering communities about compliance and program responsibilities. We added an anonymous "800" telephone number to improve accessibility.

We forwarded to the Deputy Director an investigation report recommending a finding of misconduct in science against a postdoctoral researcher who admitted fabricating data generated under an NSF award. In three misconduct in science cases referred previously, the Deputy Director made findings and took actions consistent with our recommendations.

An investigation revealed that a co-Principal Investigator (co-PI) falsified more than a hundred travel receipts for reimbursement on foreign trips. The local county district attorney charged the co-PI with Grand Theft by Embezzlement; the co-PI did not contest the charge and was sentenced. Approximately \$1.5 million was returned to NSF because the project could not be completed.

As the new Inspector General, I welcome the opportunity to work with the National Science Board (NSB) and NSF management to identify areas for managerial and operational improvement, helping NSF to remain one of the federal government's most cost-effective agencies. I will provide leadership to the Office of the Inspector General (OIG), emphasizing prevention through outreach activities and enhanced communication with NSF and its support recipients. The OIG will continue to work with NSF to understand and advance its performance goals and measures, as required by the Government Performance and Results Act (GPRA). As an independent assessor of NSF's research and education awardees and its management processes, the OIG is well positioned to assess various aspects of NSF's capabilities in managing its dynamic and diverse portfolio supporting ideas, people, and tools. I look forward to facing the challenges of this office and meeting the responsibilities required by the Inspector General Act.

Respectfully submitted,

A handwritten signature in black ink, reading "Christine C. Boesz". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Christine C. Boesz
Inspector General
March 31, 2000

About the Inspector General

Christine C. Boesz, Dr.P.H.



March
2000



The Inspector General heads the Office of the Inspector General, and reports directly to the National Science Board and the Congress. The OIG recommends policies to promote economy, efficiency, and effectiveness in administering NSF programs and operations. It also aims to prevent and detect fraud, waste, and abuse; to improve the integrity of NSF programs and operations; and to investigate cases involving misconduct in science.

Dr. Christine C. Boesz assumed her duties as Inspector General of the National Science Foundation on January 18, 2000. Prior to that, she served as Head, Regulatory Accountability, at Aetna U.S. Healthcare, a subsidiary of Aetna, Inc. In that position, Dr. Boesz was responsible for establishing and maintaining a compliance program for Medicare legislative and regulatory activities. She has also held several government compliance and oversight positions during an 18-year career with the Health Care Financing Administration, including Director, Operations and Oversight, Office of Managed Care.

Dr. Boesz received her Doctorate in Public Health from the University of Michigan School of Public Health (1997). Her M.S. in Statistics was awarded by Rutgers University (1967) and she received her B.A. in Mathematics from Douglass College (1966).

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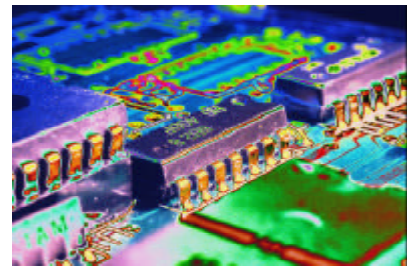
Integrity

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Glossary



ACRONYMS

AOR	Authorized Organizational Representative
CFO	Chief Financial Officer
CPA	Certified Public Accountant
COI	Conflict of Interests
COV	Committee of Visitors
CPO	Division of Contracts, Policy, and Oversight
DARPA	Defense Advanced Research Projects Agency
DIS	Division of Information Systems
DOD	Department of Defense
DOJ	Department of Justice
GPRA	Government Performance and Results Act
ISP	Internet Service Provider
NSB	National Science Board
OGC	Office of General Counsel
OPP	Office of Polar Programs
PI	Principal Investigator
PP&E	Property, Plant, and Equipment
SGER	Small Grants for Exploratory Research
SPSE	South Pole Safety and Environmental
SPSM	South Pole Station Modernization
STC	Science and Technology Center
USAP	United States Antarctic Program

REPORTING REQUIREMENTS

Under the Inspector General Act, we report to the Congress every 6 months about what we have been doing. In particular, we must discuss:

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)	1, 33
Matters referred to prosecutors, and the resulting prosecutions and convictions	15, 44
With regard to previously reported recommendations: significant management decisions that were revised, and significant recommendations for which NSF has not completed its response	42, 44
Legislation and regulations that may affect the efficiency or integrity of NSF's programs	None to Report This Period
Whether we disagree with any significant decision by NSF management	None to Report This Period
Any matter in which the agency unreasonably refused to provide us with information or assistance	None to Report This Period

Efficiency



2000

We review agency operations as well as grants, contracts, and cooperative agreements funded by NSF. We conduct financial audits to determine whether costs claimed by awardees are allowable, reasonable, and properly allocated. Our audits also seek to identify practices that may be modified so that funds can be used for other purposes that taxpayers consider more important. We are responsible for auditing NSF's financial statements, including evaluations of internal controls and data processing systems.

We conduct multidisciplinary reviews of financial, administrative, and programmatic operations to identify problems as well as to highlight what works well. These reviews are designed to assist managers at NSF and funded organizations to improve operations and better achieve mutual research and education goals.

Highlights

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ISSUES INVOLVING ADMINISTRATION and MANAGEMENT

NSF Receives Second Unqualified Audit Opinion on its Financial Statements

In accordance with the Chief Financial Officers (CFO) and Government Management Reform Acts, we completed our audit of NSF's agency-wide financial statements for FY 1999. NSF received an unqualified opinion on its balance sheet and related statements of net costs, changes in net position, budgeting resources, and finances, for the second successive year. Further, in partnership with NSF management, we completed our audit six weeks ahead of the mandated March 1st reporting date.

Our tests of compliance with laws and regulations that could have a material effect on the financial statements found no instances of noncompliance. However, our consideration of NSF's internal controls again identified one reportable condition concerning property, plant, and equipment (PP&E) managed by a contractor and used in the U.S. Antarctic Program (USAP). NSF, through its contractor, maintains research facilities in New Zealand and Antarctica where over 95 percent of NSF's capital assets reside. Our FY 1998 audit found that the USAP contractor's accounting system did not consistently value and classify the full costs of buildings, construction in progress, and capital equipment. While our FY 1999 audit found that the Foundation and the contractor had taken action to correct this weakness, the contractor's accounting system did not accurately record equipment additions in the year-end equipment account balances reported to NSF. NSF recently selected a new contractor for the USAP, and NSF is currently working with this new contractor to implement our recommendation that complete and accurate reporting of the USAP PP&E is ensured.



NSF's Second Unqualified Audit Opinion

The scope of this year's audit was expanded to include a more comprehensive review of NSF's data processing system and information system controls. In accordance with the General Accounting Office's Federal Information System Controls Audit Manual, we assessed system controls pertaining to financial data integrity, confidentiality, and availability. We also performed penetration tests to identify vulnerabilities in the Foundation's data processing environment. Our FY 1999 Management Letter Report included several recommendations to NSF management to assure greater security over its information. NSF management agreed to take corrective action on all recommendations and/or has offered an acceptable explanation or alternative approach.

GPRA Monitoring

We continue to monitor the Foundation's efforts to comply with the Government Performance and Results Act (GPRA). During this reporting period, we reviewed and commented on several of NSF's latest Performance Plan drafts. We are encouraged that NSF is increasingly using information from the GPRA process to sharpen its performance goals and measures, and we hope that this information leads to improved management systems to help NSF meet its Government Performance and Results Act targets.



We closely followed NSF's efforts to develop its first Performance Report through our participation in the Foundation's GPRA internal working groups. We were especially interested in the activities of NSF's Committees of Visitors (COVs), groups of outside experts who assess the quality of process and results of NSF programs on a 3-year cycle. The COVs are integral to NSF's GPRA reporting, because they make qualitative judgments on NSF's success in meeting its outcome goals. As such, we compared the Performance Report's summary of the COV expert assessments with the source COV reports and found that the Performance Report fairly represented the experts' judgments.

We reviewed the performance information reflected in NSF's Accountability Report. We identified minor classification and reporting differences between this report and the GPRA Performance Report that the Foundation has addressed or plans to address as it refines its data quality process. Also, as part of our audit of NSF's financial statements, we assessed the Foundation's internal controls for ensuring the existence and completeness of data supporting the quantitative performance measures in the Accountability Report and found them to be adequate. However, we did not audit the data in the Performance Report.

We participated with representatives from other Offices of Inspector General to address GPRA issues of common concern, such as the verification and validation of GPRA data. As a result of these discussions, we offered NSF management suggestions for developing its data collection and measurement systems.

NSF's processes for managing outside expert evaluations of agency programs and the aggregation of these evaluations into the Performance and Accountability reports are evolving. We believe our involvement is helping the agency develop a more useful, data-driven performance assessment system.

Management Challenges

For the third consecutive year, Congressional leaders asked Inspectors General to identify the 10 most serious management challenges facing their agencies. In our view, the challenges facing NSF have not changed substantially since last year.

Maintaining a fair, effective system for reviewing proposed research and education projects is crucial to the Foundation's success and, accordingly, should receive perennial focus from NSF management. NSF's GPRA Performance Plan highlights important issues affecting NSF's merit review system, which includes ensuring that proposal reviewers use NSF's review criteria and that they are open to novel ideas and/or proposals from new investigators.

Proposals to increase NSF's responsibilities also pose challenges for the Foundation. NSF may be asked to play an enhanced leadership role in coordinating interagency activities, especially in the area of information technology research. As such, NSF requires creative approaches to meet the challenge of staffing interagency and cross-disciplinary initiatives while, at the same time, managing the merit review of new proposals submitted under current programs and monitoring performance oversight of existing projects and awards.

Project oversight of NSF's Antarctic program is an ongoing challenge, because of the remote location and hostile environment. NSF's recent procurement of a new contractor to provide support to this program will need to be closely monitored to ensure a smooth transition.



Implementation of the Chief Financial Officers Act and the Government Performance and Results Act continue to require NSF's attention. Although the two most recent audits of NSF's financial statements resulted in "clean" opinions, they identified an immaterial weakness in accounting for NSF property, plant, and equipment used to support the U.S. Antarctic Program. The most recent audit also made management letter report recommendations for improving the security of NSF's computer information systems. With regard to GPRA implementation, we believe NSF should strive to make Government Performance and Results Act more of a tool by which to manage the Foundation.

Maintaining high ethical standards in research and education is also vital to NSF's mission. We believe that NSF has effective systems in place to address alleged ethical violations in its funded community and to acquaint NSF staff with their ethical responsibilities, especially regarding conflicts of interests. When the new government-wide research misconduct policy is finalized, NSF will need to take steps to ensure that the Foundation continues to treat ethical violations consistently, regardless of whether they involve research or education projects. We are confident that NSF management will continue to focus on the major issues and will make additional progress in addressing them.

Need to Reconsider Policy on Supplementary Funding Approval

While performing an audit of a major NSF research project, we identified the need for the Foundation to reconsider its policy for approving additional funding for large capital projects. Currently, the National Science Board (NSB) has delegated authority to the Director to commit additional funds to awards that were initially approved by the NSB. Pursuant to current NSF practice and procedure, this authority has been further delegated to the staff level. However, given the size, importance, and complexity of these projects, we suggested that NSF management reconsider maintaining authority for additional funds on capital project awards at the Director's level. NSF management agrees that the Director should be kept informed of the progress of large capital projects, although it does not believe changing the delegation of authority is necessary to accomplish this objective. The OIG will continue to work with NSF management in evaluating the most appropriate procedures for ensuring proper notification of the Director on the status of large capital projects.

LAN Contractor has Questioned Costs

NSF contracts for various information systems' services, including technical support of its local area networks (LANs), revealed questioned costs. At the request of NSF's contracts office, we audited three contracts awarded to a LAN contractor. Of the more than \$3.1 million claimed costs reviewed, we questioned \$321,559 for indirect costs billed in excess of audited and/or final rates, and direct costs not authorized under the terms of the contract. Among the costs inappropriately included in the contractor's indirect-cost pools was a \$120,000 payment for a portion of an out-of-court settlement unrelated to the NSF contracts.

Additionally, we found a material weakness in the contractor's contract management practices. The contractor was unable to provide us with indirect cost and fringe-benefit plans to support its rates or written authorizations from NSF evidencing its actions to change key terms of the contract.



AUDITS INVOLVING EDUCATION and HUMAN RESOURCES AWARDS

Northeast Education Center Claims Unallowable Costs

We audited five NSF awards issued to a northeast, non-profit education center that designs programs to increase the understanding of mathematics. These awards included support for broadening K-8 teachers' knowledge of mathematics, and cross-district collaborative efforts among education and community leaders to reform science education, develop mathematics curriculum materials, and establish an institute for curriculum selection and implementation in K-12 mathematics education. Of the \$12.1 million in costs claimed under these awards, we questioned \$73,943. Contrary to NSF requirements, the center charged \$59,149 for food that was regularly provided at meetings and conferences. Additionally, we questioned \$14,524 in subcontract costs that the center claimed in excess of its actual costs.

**Of the \$12.1 million
in costs claimed
under these awards,
we questioned \$73,943**

We also found significant weaknesses in the center's administration of awards and accounting processes. The center was unable to provide supporting documentation for 258 of 886 transactions sampled. Only by conducting alternative procedures were we able to ultimately determine allowability of the costs. The center's travel policy permitted individuals to obtain lodging at daily rates in excess of federal rates, and did not have an adequate tracking system in place to monitor cost sharing. While such a policy is allowable, we estimated that the center could save \$59,000 through the use of the lower federal rates.

The center has disagreed with most of the findings and we have forwarded this matter to NSF's Division of Contracts, Policy and Oversight for resolution.

Northeastern School District Has Material Noncompliance Issues

We audited an Urban Systemic Initiative award issued to a Pennsylvania school district to improve the scientific and mathematical literacy of students. Of \$9.9 million in claimed costs, we questioned \$403,410 for unallowable and unsupported costs. Specifically, we questioned: \$193,424 because the school district transferred costs from an unrelated program to the NSF award without adequate supporting documentation, \$195,088 for subcontract costs in excess of actual costs, excessive salary, and fringe benefit costs, and \$14,898 for overbilled indirect costs.



Material internal control weaknesses in the school district's accounting and reporting systems were identified. In particular, the school district was unable to report actual cost sharing to the Foundation on an annual basis as required. Only with significant assistance from auditors, was the school district able to provide support of its \$29 million cost-sharing obligation to NSF.

In addition, the school district lacked the financial management capability to compare budgeted award costs with actual costs as required or to ensure its cash balances were not in excess of its cash needs. The school district also did not maintain an adequate system of record retention and retrieval for NSF awards.

The school district has acknowledged the validity of most of the findings and has offered restitution for a portion of the questioned costs. All contested findings and questioned costs will be resolved by NSF's Division of Contracts, Policy, and Oversight.

Northeastern Education Center's Claimed Costs Not Adequately Supported

NSF granted five awards to a northeastern non-profit education center to develop visual technology intended to promote the understanding, interest, and sharing of science among students and the scientific community. Our audit of these awards questioned \$277,565 of the \$8.4 million in claimed costs. Inadequate support for the center's cost-sharing obligation accounted for \$239,980 of the questioned costs. We also questioned \$31,546 charged for fringe benefits that exceeded actual costs, and \$6,039 charged for food that was inappropriately provided at meetings and conferences.

We also identified a material non-compliance matter with NSF's cash management requirements. The center maintained cash balances significantly in excess of its funding needs for six quarters over a 3-year period. As a result, it was necessary for the center to reimburse NSF \$6,861 for interest earned on these funds.

The center established a travel policy that permitted individuals to obtain lodging at daily rates that were sometimes significantly higher than federal rates. Based on our sample, these differences ranged from \$25 to \$100 per night, and totaled \$12,400. Though allowable, we recommended that the center attempt to minimize differences with federal per diem rates to save money.

Audit Resolutions of Prior Education and Human Resources Reviews

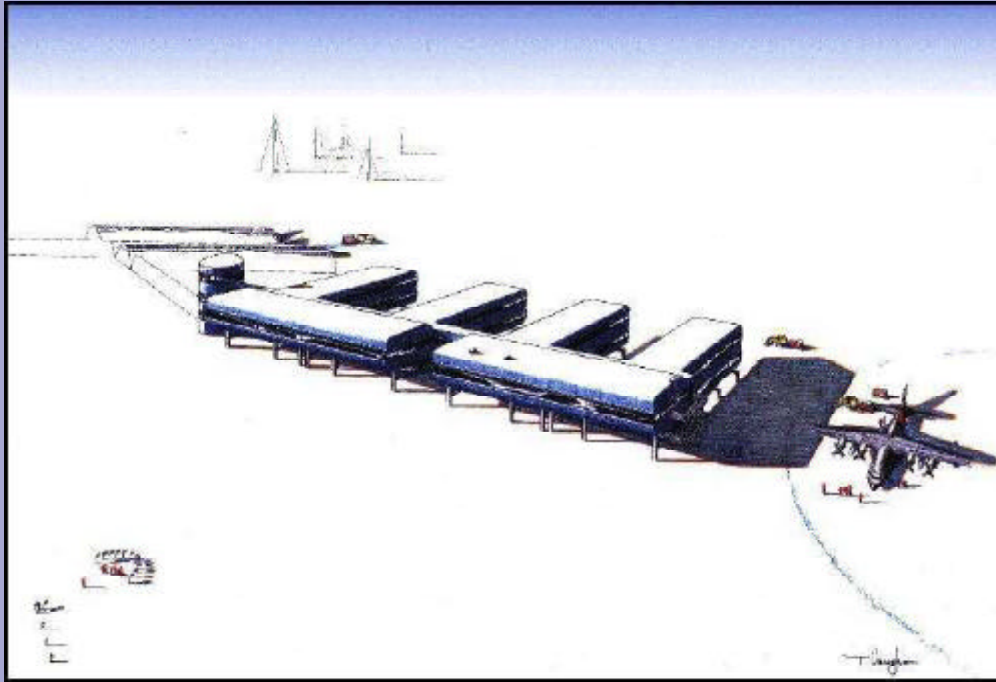
Western State Department of Education. In our March 1999 Semiannual Report (page 9), we summarized the results of our review of two awards to a western state department of education. Our audit recommended that NSF management review one of these awards to ensure that the department meets its \$8.6 million cost-sharing requirement. We also questioned amounts for indirect costs that were charged to NSF awards at rates higher than those allowed in the award agreement.

In response to our recommendations, the department fully met its requirement for cost sharing under the award. Additionally, NSF management agreed that all of the questioned indirect costs were unallowable and required the department to credit NSF \$382,765.



A Northwest Municipal School District Must Adjust Future Claimed Costs. In our September 1999 Semiannual Report (page 10), we reported the results of an audit of a northwestern municipal school district that received a 5-year, \$4.2 million *NSF Local Systemic Change through Teacher Enhancement* award. We reported that the school district was at-risk of not providing \$1.3 million in required cost sharing over the course of the award. We also questioned \$29,499 of participant support costs claimed in excess of amounts allowable under the award and identified another future \$30,000 in potential unallowable participant support costs, if the existing practices were not changed.

Based on these audit results, the school district provided NSF with additional documentation evidencing the likelihood that it will fully meet its cost-sharing obligation. Also, the school district has agreed to offset the \$29,499 in unallowable participant support costs against future unbilled costs and to adhere to NSF's limitation on payments to participants, thereby saving approximately \$30,000 in anticipated future stipend costs.



*Rendering of the New South Pole Station
By Tom Vaughan*

POLAR PROGRAM REVIEWS

South Pole Projects – Update

The Office of Polar Programs (OPP) is in the process of transitioning the South Pole Safety and Environmental (SPSE) and Station Modernization (SPSM) projects to the U.S. Antarctic Program's new support contractor. As part of our continuing participation in quarterly reviews of these projects, we assisted the transition effort by conducting a preliminary review of how engineering and engineering-related documentation associated with these projects is logged, distributed, and tracked by the current support contractor. With minor exceptions, we reported to OPP that the current contractor has adequate control over project documentation.

We also conducted a site visit to the South Pole to view the progress of the SPSE/SM projects. To date, the projects are on schedule and within budget. The garage/shops complex and the fuel storage facility were completed by a winter-over construction crew and accepted by the Foundation. Construction of the interior of the new power plant, the final SPSE project, will be completed early in FY2001 and is expected to be accepted by NSF in January 2001 as planned.

Transportation Costs in the U.S. Antarctic Program

OPP's support contractor is responsible for handling the transportation of cargo to and from the Antarctic for the U.S. Antarctic Program (USAP). USAP participants include scientists, the support contractor and federal agencies, including several units of the Department of Defense. In addition to packing and tracking this cargo, the contractor is also responsible for shipping cargo via the least expensive means to satisfy the delivery date requested by the USAP participant. Despite this policy, some USAP participants were bypassing the contractor's system and using more expensive transportation methods. As a result, OPP incurred approximately \$432,000 in unnecessary transportation costs. We also discovered that the USAP's transportation code was erroneously charged for approximately \$35,200 in shipments.

We recommended that OPP seek reimbursement for the erroneous charges. We also recommended that OPP take action to advise its all USAP participants to ship only through the USAP support contractor and to withhold payment for any shipments made contrary to this policy. OPP initiated a request for reimbursement of the erroneous charges, and accepted some of our internal control recommendations.

Aircraft Reconfiguration

In FY 1997, OPP began to work with a unit of the Department of Defense (DOD) and its contractor personnel to award a contract to modify up to three of NSF's ski-equipped aircraft. To assist OPP, we have participated for over 2 years in some of OPP's quarterly reviews of this aircraft modification effort.

Specifically, we worked with OPP and the DOD unit to document and verify nearly \$1 million in program management costs incurred during fiscal years 1997 to 1999. We also evaluated the DoD unit's procedures for ordering and paying for services and found them to be adequate to safeguard OPP funds. However, we noted that the initial estimate for providing program management services had been exceeded. We suggested that OPP seek an updated and more accurate estimate. We also suggested that a detailed accounting of the project's financial activity and contractor progress reports on the work status of the project be submitted to OPP periodically. These suggestions have been implemented.

Flight Operations Review Resolved

In our September 1998 Semiannual Report (page 8), we reported the results of a review of OPP's transfer of Antarctic flight operations from the Navy to the New York Air National Guard. This review questioned several line items reflected in the Guard's proposed budget and made recommendations for reducing other amounts.

During this reporting period, OPP management resolved all of our recommendations, resulting in approximately \$315,700 of funds put to better use annually.



ISSUES INVOLVING RESEARCH PROJECT SUPPORT

Mid-Atlantic University Modifies Effort Certification Procedures

Pursuant to a request from an NSF program officer, we conducted a survey of a Mid-Atlantic university's "Basic Science Faculty Gain-Sharing Plan." The program officer was concerned about the gain-sharing plan's method of providing additional compensation to basic science faculty members who receive at least 25 percent of their base salary from extramural sources.

We concluded that applicable cost principles do not prohibit the adoption of such a plan. We also verified that federal funds were not being used to fund the incentive payments that the university made under this plan and that the plan had no impact on the level of salaries charged to NSF grants. We suggested a minor modification to the university's effort-certification procedures, which the university has agreed to implement.

Audit Resolutions of Prior Research Project Support Reviews

Questioned Costs for Agile Manufacturing Sustained. In 1994, NSF and the Defense Advanced Research Projects Agency awarded a cooperative agreement to a northeastern university to establish and manage an industry forum for agile manufacturing. The university operated the forum for 2 years and then transferred it to the university's subsidiary. A 1997 audit of the \$9.6 million transferred to the subsidiary, which we reported in our March 1998 Semiannual Report (page 7), revealed \$705,125 in questioned costs and a potential shortfall of almost \$9 million in cost sharing. Shortly after the release of the audit report, NSF management undertook a technical review of the project and recommended that further federal funding be withheld. NSF management sustained our finding of a shortfall of \$7,364,637 in promised cost sharing and \$564,828 in other questioned costs, including \$289,847 in indirect costs.

Because of the magnitude of problems found with the award at the subsidiary, we audited the original award of \$15.5 million to the university. This audit, which we reported in our March 1999 Semiannual Report (page 11), revealed \$452,619 in questioned costs and over \$2.6 million in unsupported costs. Based on the results of this audit, NSF is requesting that the university repay \$39,769 in unallowable costs, a majority of which relate to payments to consultants, in excess of the NSF approved maximum rate.

Institute Agrees With Recommendations That Will Save \$499,920. In our September 1999 Semiannual Report (page 8), we reported the results of an audit of a non-profit research institute. We questioned \$85,392 in unallowable and unreasonable costs, and estimated that the government would save \$499,920 over 5 years if the institute agreed to a reduction of its indirect cost rate. NSF has since required the institute to offset \$85,392 against unbilled future costs and agreed with, and will consider in its next rate review, our recommendations related to indirect costs. Also, as a result of our recommendations, the institute submitted its indirect-cost rate proposal for its fiscal year ended June 30, 1999, for review by NSF.




Research Institute Reduces Proposed Costs

In our September 1999 Semi-annual Report (page 7), we reported on our reviews of two Research Institutes. The reviews focused on strategies to decrease NSF funding, because the institutes are expected over time to replace some federal funds with outside funding. We reviewed their active awards and proposed budgets, including one located at a large northern state university. We recommended budget revisions related to the proposed revenue and inflationary estimates, the electronic distribution of a newsletter and overhead slides, and charges for dinners and other refreshments. The institute agreed to implement our recommendations in a revised version of the proposal, resulting in \$659,205 of funds put to better use.

An Eastern University Must Repay NSF and Adjust Claimed Costs

Based on the results of a previous audit of an eastern university, NSF agreed that \$158,743 of the university's claimed costs were unallowable and not adequately supported. The Foundation required the university to repay \$70,744 and offset \$87,999 against future unbilled costs. NSF and the university satisfactorily resolved other compliance and internal control issues.

Other Audit Resolutions

-  Responding to our audit of a midwestern university, NSF agreed that \$97,418 of the university's claimed costs were unallowable and not adequately supported. NSF required the university to repay \$24,437 and offset \$72,981 against future unbilled costs. NSF and the university satisfactorily resolved other compliance and internal control issues.
-  In our March 1999 Semiannual Report (page 14), we reported that a midwestern museum charged unreasonable amounts for salaries, fringe benefits, equipment, supplies, and related indirect costs to the Foundation. Subsequently, NSF reviewed additional documentation provided by the museum and allowed a majority of the questioned costs. However, the museum must still repay \$11,616, and agreed to make adjustment to other NSF active awards for \$50,625 in disallowed costs.
-  In our September 1999 Semiannual Report (page 9), we reported that two organizations with NSF awards involving communications and networking had claimed costs that could not be adequately supported. NSF disallowed the entire \$62,821 in questioned costs. The organizations were able to use unbilled costs to offset \$58,139 of the disallowed amount, but had to repay the remaining \$4,682 to the government.

SUMMARY of OTHER AUDITS of NSF AWARDS

In addition to the reports described, we conducted three separate audits of organizations that received four awards related to education.

- We reviewed two NSF awards to a non-profit consortium that enables students to use advanced networking technologies in natural settings, and provides courses to high school teachers who use computer networking. Of the \$4.7 million claimed under these awards, we questioned \$29,885 for future distribution costs that lacked actual contractual commitments, and for food inappropriately provided at staff meetings and conferences. We also found that the consortium maintained cash balances greater than those allowed under federal and NSF policies, failed to maintain written agreements with all of its consultants, and had a travel policy permitting individuals to obtain lodging at unnecessarily high rates.
- A western university supporting the cooperative efforts of five local universities to prepare greater numbers of qualified mathematics and science teachers did not effectively monitor the practices of its subrecipients. The university received less than half of the single audit reports performed over a 4-year period for its subawardees, and did not receive any of the audit management letters referred to in the reports. Two subawardees did not have payroll distribution systems meeting federal requirements; one university subawardee did not have a conflict of interests policy that complies with NSF requirements; and one university subawardee has not implemented policies and procedures to ensure that cost sharing is reported accurately to NSF.

We questioned \$27,859 out of \$3.1 million in NSF funds provided. The questioned costs related to overbilled indirect costs, unrelated and excessive travel costs, gifts provided to presenters at a student symposium, and meals provided to individuals not associated with the project. The participating universities have agreed with our findings.

- We audited an NSF award in support of a non-profit corporation project to improve the training methods and knowledge of high school teachers in particular areas of mathematics. The award also provides opportunities for researchers to collaborate on the same subjects. Of the \$3.9 million in additional costs claimed under this award, we questioned \$4,959 that was reimbursed for alcoholic beverages, and unallowable and unsupported travel costs. We also found that the awardee: did not fully meet NSF cost sharing reporting requirements; lacked some adequate supporting documentation; needed written accounting policies and procedures; and should improve its review of travel expense vouchers.

Reviews of A-133 Audit Reports

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

During this reporting period, our office reviewed 121 A-133 audit reports valued at \$552,313,324. Questioned costs totaling \$3,181,847 were found in the audits for five institutions. An overall lack of subrecipient monitoring was a common internal control finding. Also, a few awardees failed to submit timely reports, and several had procurement and property systems that were not in compliance with federal regulations.

Resolutions of Prior A-133 Audits

Northeastern Science Center has Cost-Sharing Shortfall. NSF management sustained questioned costs of \$379,383 related to a cost-sharing shortfall for a northeastern science center. The center's A-133 audit originally identified a potential \$875,104 shortfall 2 months before the expiration of the award. However, during the resolution of this finding, NSF management found that only fifty percent of the work planned under the award had been completed. Thus, because the total amount of the award was less than anticipated, NSF recalculated the cost-sharing shortfall as a percentage of the actual project costs.

Western College Charged NSF Twice. NSF management sustained questioned costs of \$285,106 reported in an A-133 audit of a western college. Provided with an NSF letter of credit, the college erroneously drew down funds twice to cover the same expenditures. The money will be offset against future costs incurred on NSF awards.

Integrity



2000

The Integrity section develops and coordinates our outreach efforts, and assesses and investigates allegations of wrongdoing. Our outreach efforts are essential to building partnerships within the agency, with other federal agencies, NSF awardees, and scientific communities. These partnerships assist us in promoting education on ethical issues and resolving integrity and efficiency matters effectively.

We investigate allegations of wrongdoing involving organizations or individuals that receive awards from, conduct business with, or work for, NSF. In investigating these allegations we assess their seriousness and recommend proportionate action. When possible, we work in partnership with agencies and awardees to resolve these issues. When appropriate, the results of these investigations are referred to the Department of Justice or other prosecutorial authorities for criminal prosecution or civil litigation, or to NSF management for administrative resolution.

Our criminal and civil investigative resources focus on allegations of intentional diversion of NSF funds and material false statements in information submitted to the Foundation. Intentional diversion of NSF funds for personal use is a criminal act, which can be prosecuted under several statutes. Investigating these allegations is a priority for our office. We encourage awardees to notify NSF of any significant problems relating to the misuse of NSF funds, because it significantly increases our ability to conduct investigations and possibly recover funds for NSF.

Our administrative cases include those addressing allegations of misconduct in science, engineering, and education, such as falsification, fabrication, and plagiarism. Misconduct in science strikes at the core of NSF's mission, and is a special concern for our office.

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New Seminars and Continued Outreach Efforts

We continue to refine our outreach and liaison programs described in previous Semiannual Reports.

In addition to our routine meetings with NSF divisions, we also had the opportunity to discuss our responsibilities with a group of new Education and Human Resources Directorate awardees.

Our outreach efforts have improved our reviews and refined our approach to issues important to the Foundation and the communities it serves. They are also becoming an effective means of educating the scientific and engineering communities about ethical issues, compliance, and program responsibilities.

We welcome invitations to present the seminars highlighted here for your organization. If you are interested or would like more information about our seminars, please contact our Outreach Coordinator.

Phone: (703) 306-2100

Write: National Science Foundation
Office of Inspector General
4201 Wilson Boulevard
Suite 1135
Arlington, Virginia 22230

Email: oig-outreach@nsf.gov

Revised Outreach Seminar for Principal Investigators and Administrators

During this period we restructured our outreach briefings based on information we gathered by working closely with researchers and university administrators. Our presentations focus on case studies that highlight features of the federal and host institutions' misconduct-in-science policies. Prior to the seminar, in conjunction with our sponsors, we circulate five case studies along with the federal and institution policies to the intended audience.

The case studies describe the facts and conclusions of actual misconduct cases and highlight important features of the policies. Each study highlights the resolution to uniquely different allegations. The audience selects the particular study in which it is most interested or finds most applicable. During the discussion, the audience is prompted to provide their views on the facts and resolution, seek alternative solutions, and apply the host institution's and federal misconduct-in-science policies to the case. We piloted this approach at several institutions and discovered that it elicits lively audience participation and serves as an appropriate teaching vehicle.

New "Ethical Dilemmas" Seminar for Students

We developed a seminar specifically designed for graduate students to facilitate discussions about the ethical issues they will confront as they begin their scientific careers. We begin by explaining the federal award process, terms and conditions governing the conduct of federally sponsored research, and a Principal Investigator's (PI's) obligations and commitments when submitting or reviewing proposals, and receiving awards.

We support the discussion with handouts demonstrating the award-making process and institutional and PI responsibilities. We discuss ethical dilemmas and highlight them through discussions of closed cases. We ask students to explore their solutions and reactions to these dilemmas.

We would be pleased to present either seminar to administrator, faculty, or student groups. Please call for more information and a copy of the handouts and slides.

Deferral Visits and On-Site Technical Investigative Assistance

During this reporting period we continued our practice of visiting institutions that, through the deferral process, are investigating misconduct-in-science cases within our jurisdiction. We defer investigation when we determine there is sufficient substance to an allegation and, at our request, the institution accepts the responsibility for investigating it. The deferral does not preclude us from conducting our own independent investigation, but affords us the opportunity to see the independent judgement of the scientific community. We rely heavily on that judgement when deciding whether or not to recommend that NSF management make a finding of misconduct. The success of our partnership with the community and institutional officials is predicated on a common understanding of the purpose of an investigation and our role in such an investigation. When deferring a case, we routinely visit with institutional officials and investigation committee members who will conduct the investigation. We discuss the deferral process, our respective roles in the investigation, and offer our assistance in gathering hard-to-obtain evidence.

We are frequently asked how similar matters have been resolved, and while we refrain from discussions that we believe would bias the objectivity of the committee, we do discuss and provide copies of Semi-annual Report descriptions of previous cases we investigated and closed. We explain concepts and terms essential to an investigation that will satisfy the institution and the federal government. We review the federal and institution policies to highlight similarities and areas that might cause procedural difficulties. We also provide general guidance, based on our prior experience, on investigative strategies, confidentiality, legal considerations, evidence handling, and subject- and witness- interviewing issues. We offer, and have provided in situations when committees encounter difficulties, our assistance in collecting missing evidence and interviewing individuals so that the case may be resolved expeditiously and objectively. We've learned that early discussions about procedural issues are helpful and improve the quality of the reports we receive and timeliness in resolving allegations.

National and Regional Meetings and Conferences

Our liaisons participated in a number of national and regional meetings this period. We joined representatives from NSF management at Regional Grants Conferences in Colorado and Louisiana. We discussed the newly proposed federal misconduct policy at a meeting hosted by the American Sociological Association in Washington, DC.

We also presented sessions on financial compliance issues and handling misconduct allegations at the 1999 Annual Meeting of the Society for Research Administrators held in Colorado. We would be pleased to make a presentation, facilitate a discussion or serve on a panel to cover topics in which you are interested. Please contact us to learn more about our seminars.

WHEN are DUPLICATE PUBLICATIONS PERMISSIBLE?

As part of an investigation that closed this period (page 25), we learned that many scientific communities do not have clearly articulated practices for determining what is a duplicate publication and under what conditions it is permissible. We conducted a literature review to identify publication expectation standards in the scientific and editorial communities. Our review showed that many journal editors have more clearly defined standards than scientific communities as to what is acceptable practice with duplicate publications, including proposed remedies and sanctions. We found it difficult to find articulated standards in scientific disciplines, although most scientists would probably agree that it is improper to republish and represent prior published research material as if it was primary or original work.

A duplicate publication, also referred to as self-plagiarism or redundant publication, is considered to be a published paper that substantially overlaps with an author's prior publication without reference to the original publication or editorial permission to republish. The meaning of substantial overlap is varied, with opinions ranging from 10 to 100 percent identical content.

Several recent studies estimate that duplicate publications may account for as much as 15 percent of all published papers.¹ Potential effects of duplicate publications include: wasting peer reviewers' time; adding unnecessary papers to an already extensive body of literature; overemphasizing the importance of findings; increasing the costs of publication for other scientists; and distorting the professional credentials of the author. One editor commented that readers of primary journals should be able to trust that what they are reading is original.² Another editor said duplicate publications could hinder effective communications between scientists, by placing an added burden on those who want to be informed, but end up wasting time by reading the same results and interpretations a second time.³

Our review shows that some scientists consider duplicate publications to be an issue only for papers that are republished in primary journals (peer reviewed and archival journals). In this view, monographs (invited short papers or conference proceedings) are excluded. Other scientists consider conference proceeding papers to be duplicate publications, if they represent original work and they are either peer reviewed or reflect a full published manuscript.

Journal editors take the issue of duplicate publications very seriously and provide specific instructions about what they consider acceptable practice. For example, many editors will not publish a duplicative paper unless: the authors obtain approval from both journals; target different audiences for the publications; and allow some period of time between the first and second publication. In addition, most editors require authors to clearly indicate in the second paper that the information has been published either entirely or partially in an earlier publication.

1. *American Medical Association, Manual of Style, page 98.*

2. *New England Journal of Medicine, Special Report: Uniform Requirements for Manuscripts to Biomedical Journals, 336: 310, January 23, 1997.*

3. *Philip H. Abelson, Science 218: 5, December 3, 1982*

Not surprisingly, journal editors recommend strong sanctions against authors who submit duplicate publications that are not accompanied by the appropriate notifications and/or permissions. For example, some editors recommend the circulation of a blacklist to other peer-reviewed journals identifying the offending authors; the retraction of duplicate publications from scientific databases; and/or the exclusion of these authors from publishing in a specific journal for a designated number of years. Editors also suggest more proactive approaches, such as educating authors about the negative effects of these practices, and mentoring and training for young researchers. Finally, some editors encourage decision-makers to restrict the number of publications considered for academic promotion or proposal competition. For instance, NSF limits PIs to a maximum of 10 publications in a proposal — five related to the research project and five unrelated, thereby emphasizing the quality of the publications over the quantity.

Our literature review shows that editors are actively establishing various criteria for acceptable duplicate publication. The scientific community, however, appears to have a broad range of publication practices and concepts. We are concerned about the potential effects of the apparent disjunction between the editorial and the scientific communities, especially on the efficiency and effectiveness of research reporting. NSF's definition of misconduct in science emphasizes that only those actions that seriously deviate from accepted practices within the relevant professional community are considered misconduct. We defer the investigation of allegations to awardee institutions who convene committees of experts to assess them. In the absence of clearly articulated standards or expectations within the scientific community about duplicative publications, our office and expert committees find it difficult to assess the seriousness of such allegations. We have seen that accepted practices can vary across disciplines, and we encourage discussion within and among the scientific and editorial communities on this interesting issue. We offer our role as facilitators to track community opinions.

MISCONDUCT INVESTIGATION FORWARDED to the DEPUTY DIRECTOR

Researcher Admits to Fabricating Data

We received an allegation that a postdoctoral researcher at a Mid-Atlantic university admitted fabricating data generated under an NSF award. The chemist voluntarily revealed the fabrication to the Principal Investigator, a professor who was the head of the laboratory in which the researcher worked. We contacted the professor, who confirmed the allegation and told us that the researcher fabricated the data by adjusting the controls on an analytical device so that it generated an apparent signal even though no *bona fide* signal was present. In this way, the researcher fabricated nearly all of the data in a manuscript that he and the professor submitted for publication. The researcher planned to present these data at an upcoming meeting, and actually presented the first figure from the manuscript at an earlier conference.

Although the researcher had not been under suspicion, he apparently admitted to the fabrication because he was afraid his actions would be exposed at the upcoming meeting. The researcher explained to the professor that he fabricated the data because he felt pressure to obtain data for the project, which he thought was necessary for his job. Due to the seriousness of the conduct, the professor, with the support of his department chairman, immediately terminated the researcher's employment at the university, ending his support on the NSF award. We subsequently contacted the researcher, who confirmed the truth of the allegation of fabrication and explained that he deeply regretted his actions.



In our view, data fabrication, which corrupts the scientific record and goes to the heart of the scientific enterprise, is a very serious form of misconduct. The fabrication in this case involved not only a presentation at a national conference but also a manuscript and a planned presentation. However, the relative youth and inexperience of the researcher, who received his Ph.D. only one year before, and the voluntary admission before the data were published, mitigated the seriousness of the misconduct. Moreover, the researcher had already been discharged from employment. For these reasons, we recommended that NSF debar the subject for 1 year. We believe that a debarment of this length would be proportionate to the seriousness of the researcher's conduct, and would adequately protect the federal interest in the integrity of work conducted under federal awards.

THREE FINDINGS by the DEPUTY DIRECTOR

Plagiarism in Chemistry Proposal is Misconduct

In our September 1999 Semiannual Report (page 18), we described our investigation into allegations that an associate professor of chemistry at a southern university plagiarized materials obtained through NSF's peer review system, into one proposal submitted to NSF and two submitted to another federal agency. Consistent with our recommendations, the NSF Deputy Director made a finding of misconduct in science and prohibited the professor from participating in the NSF peer review process for 2 years. For the same period, he required the professor to certify, and his institution to assure, that any requests for NSF funding do not contain any plagiarized materials and that all source documents are properly cited.

Chemist Plagiarized from NSF award

In our September 1999 Semiannual Report (page 18), we discussed the case of a chemist who plagiarized text from another PI's NSF award into his proposal. Consistent with our recommendation, NSF's Deputy Director concluded that he committed misconduct in science and sent the chemist a letter of reprimand. He required that for the next 3 years, the chemist submit a certification to us, that to the best of his knowledge, his documents contain no plagiarized material. He also required that the chemist ensure that an appropriate supervisory official provide an assurance that, to the best of his or her knowledge the chemist's work associated with any NSF-supported publication or submission to NSF contained no plagiarized material. Additionally, he agreed with the chemist's offer to teach a science ethics course and asked the chemist to provide documentation to us that students attended the course.

Plagiarism in Engineering Proposals is Misconduct

In our March 1999 Semiannual Report (page 18), we described our investigation into allegations that an assistant professor of engineering at a midwestern university plagiarized text and a figure in three proposals submitted to NSF and two to another federal agency. Consistent with our recommendations, NSF's Deputy Director concluded that the professor committed misconduct in science and required the professor to certify, and his institution to assure, for a period of 3 years that any requests for NSF funding do not include any plagiarized material and that all source documents are properly cited.



ISSUES INVOLVING CIVIL and CRIMINAL ALLEGATIONS

Archeologist Convicted of Grand Theft by Embezzlement

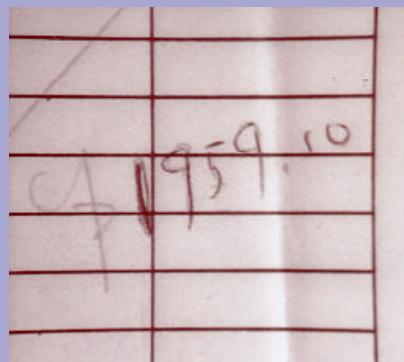
We received information in January 1999 from a west coast grantee that a co-PI on a \$1.6 million award submitted falsified travel receipts for reimbursement for foreign trips during 1997 and 1998. Upon its initial findings, the grantee terminated the co-PI's employment.

In the course of our investigation, with the assistance of foreign language experts, accountants, and forensic examiners, we identified over 100 potential false receipts. The co-PI falsified the receipts by altering receipt amounts, misrepresenting the items purchased, and fabricating receipts for non-existent purchases. He also used the award to make personal, contractual arrangements that undermined the institution's ability to complete the award.

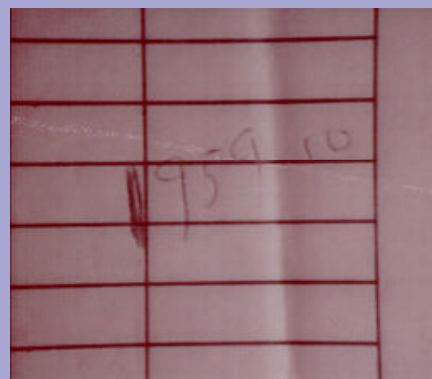
We consulted with the U.S. Attorney's Office and the County District Attorney's Office, and the County District Attorney prosecuted the case and charged the co-PI with Grand Theft by Embezzlement of approximately \$5,000. In March 2000, the co-PI did not contest the felony as charged and paid restitution to the grantee. The co-PI was sentenced to 3 years of probation, 200 hours of community service, and ordered to pay a \$210 fine. We will be forwarding information to NSF management to initiate debarment proceedings.

As a result of the co-PI's conduct, the grantee was unable to continue with the NSF award and returned approximately \$1.5 million to the Foundation.

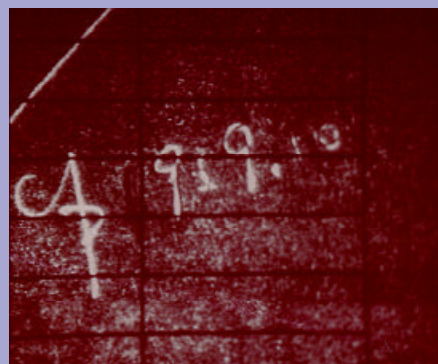
**Photos by Howard C. Rile, Jr.
Forensic Document Examiner**



Using a Video Scanning Comparator, a travel receipt was examined to determine falsification. This series of three, thermal prints show how the original receipt looked under normal light, infrared reflectance, and infrared luminescence.



The entry was initially 959.10 and it was later changed to 1959.10. The infrared reflectance process shows what was added (above) and the luminescence process shows what was originally invoiced (below).



Theft and Conversion of Government Property

During a review of credit card purchases it was discovered that an NSF employee used government VISA credit cards to purchase items for personal use. The employee was authorized to purchase specific items for his division with these VISA credit cards. The balances on the credit cards were paid with division funds. After learning of these purchases, NSF placed the employee on administrative leave and referred the matter to us for investigation.

Our investigation revealed that the employee used the government VISA credit cards to purchase approximately \$8,000 in personal items, memberships to Internet sites, and the services of a law firm. During our interview, the employee confessed to purchasing these items and others for his personal use and charging them to the government credit cards.

A search of the employee's home resulted in the seizure of some of the illegally purchased items. The employee was arrested and charged with theft and conversion of government property.

Scientist Sentenced to Jail Term

In the March 1999 Semiannual Report to Congress (page 21), we reported that we led a multi-agency investigation that resulted in a guilty plea by a computer science professor at a southern state university, to a state charge of Abuse of Official Capacity. The professor admitted to 28 separate instances of misusing state and federal research funds for personal businesses. The state court fined the professor, ordered payment of restitution and probation. Based on the conviction, the Department of Defense debarred the professor for 3 years.

In a hearing to revoke his probation, the computer scientist pled true to 26 additional instances of theft from the university, involving copying and mailing of over 130,000 pages of material at the university's expense and using a university telephone card after his employment was terminated. These thefts involved altering payment authorization forms to falsely reflect supervisory approval.

The court accepted the computer scientist's plea and the state felony conviction for Abuse of Official Capacity became final. The court sentenced the professor to serve 60 days in jail and ordered him to pay \$8,000 in additional restitution to the university.

Professor Returns Money to Grant and University Changes Travel Policies

As a result of a broad review of travel expenses related to conference awards, we discovered that a professor of mathematics at a west coast university overcharged his NSF grants for travel expenditures. We found that the professor did not deduct from his travel vouchers subsidies from outside sources, including payments for lodging, meals, subsistence, airline tickets, and honoraria. In addition, the professor claimed per diem more than once for days during an extended trip.

Throughout the investigation we worked with the university to understand how these overcharges occurred. It became clear that university policies were conflicting and failed to provide guidance related to foreign travel and external travel payments. For example, one policy allowed a traveler to collect a per diem rate for lodging and meals. This method of reimbursement required only proof of travel and did not take into consideration payments from external sources for meals, lodging, and other items. The policy did not require travelers to deduct these external payments upon submission for reimbursement.

During our investigation, and as a result of information exchanged between the university, the professor, and our office, the professor voluntarily returned \$1,530 to his NSF grant to compensate for his overcharges. The university modified its travel policy to require travelers to identify and deduct external payments and subsidies for travel from their requested travel reimbursement. In addition, the university clarified its travel expenditure manual to ensure that travelers are informed of the proper procedures for travel reimbursement related to foreign travel.

Computer Intrusions of the U.S. Antarctic Program

The Office of Polar Programs (OPP) notified us that intruders accessed computer network servers at two United States Antarctic Program (USAP) stations and the contractor's headquarters, in July 1999. Network administration and other information technology operations for the USAP, administered by NSF, are included as part of the contractor's duties.

These intrusions could have compromised user accounts and passwords at the two USAP stations and allowed unauthorized access to proprietary scientific data. We were informed that the contractor spent approximately \$45,000 to investigate and correct the problems created by these intrusions. The recovered computer logs indicate that for a period of several months, intrusions originated from multiple international Internet Service Provider (ISP) accounts including four originating from the United States and Canada. However, because the ISPs did not retain records beyond one month, we were unable to trace the source of the intrusions. We are recommending several improvements to OPP regarding incident response coordination and network security.

Lack of a Conflict-of-Interests Policy at a Non-Profit Association

Since 1995, the Foundation has required grantees with 50 or more employees to have a formal Conflict-of-Interests (COI) policy. The authorized organizational representative (AOR) is required to certify on the NSF proposal cover page that the institution has a COI policy. In November 1999, NSF's Contracts, Policy and Oversight (CPO) told us of a non-profit association's lack of a COI policy. It suspended the association from spending NSF grant funds until a completed COI policy had been approved by NSF's Office of General Counsel (OGC). After reviewing the association's records, we concluded that the AOR, who is also a PI on awards, falsely certified the existence of a written COI policy on several proposals. Our review, however, found no evidence of inappropriate conflicts or unallowable costs. CPO's suspension was lifted after OGC approved that association's final policy.

SIGNIFICANT ADMINISTRATIVE CASE ACTIVITY

Duplicate Proposal Submission and Repeated Errors in *Current and Pending Support* Forms

We learned that a chemical engineering professor at a west coast institution submitted an NSF proposal that was nearly identical to a proposal he submitted to another agency, without making the required disclosures on the NSF proposal cover page or in the *Current and Pending Support* form. Neither proposal was funded. The professor told us that he had been under extreme time pressure, and did not examine these forms very thoroughly. In our view, the professor had not sufficiently explained the failure to disclose the largely identical proposal, so we deferred an inquiry to the professor's institution.

The preliminary investigating officer at the institution found that the professor relied on two administrative assistants to fill out his *Current and Pending Support* form and to complete the duplicate proposal box on the cover sheet. They prepared these forms based on previous grant applications and records that they maintained. Although the professor had an opportunity to change these forms, he failed to undertake a thorough review or institute a better tracking system. As a result, almost all of the 15 additional proposals examined had errors or omissions in the *Current and Pending Support* section. Although there was another set of duplicate submissions among these proposals, only one was funded. Accordingly, there was no issue of receipt of duplicate funding.

The preliminary investigating officer believed that the professor's actions were errors, that the individual errors were not committed knowingly, and that the professor was not trying to hide attempts to receive duplicate funding. However, the preliminary investigating officer concluded that the professor knowingly adopted a faulty procedure. Based on the report of the preliminary investigating officer, the Chancellor censured the professor, and required that for the next 3 years, all of the professor's proposals be certified by the Dean.

We agreed that the professor's procedure was unacceptable, but concluded he negligently submitted undisclosed duplicative proposals. The professor has apologized and undertaken to improve the accuracy of his submissions. Accordingly, we concluded that the Chancellor's actions were sufficient to protect the government's interest in ensuring that the professor's future *Current and Pending Support* sections are accurate and that duplicative proposals are not submitted without disclosure.



Duplicate Publications Determined not to be Misconduct in Science

We discovered that an NSF-funded engineer at an eastern university published essentially identical manuscripts in two peer-reviewed journals. We later determined that he published eight sets of papers with similar overlaps, with one set including submissions to four different journals. We contacted the subject about the duplicate publications, and, because we found his explanation to be unsatisfactory, referred the investigation to his university.

The university's committee considered his alleged duplicate publications to exemplify two practices: (1) publishing as conference proceedings, materials that had previously been published in a refereed, archival journal; and (2) publishing as first-tier, archival, peer-reviewed journal papers, materials that were published previously in a similar quality journal. The committee members described his first practice as in "the fringe area of acceptable practice[s]." In contrast, they found the second practice went "beyond the acceptable standards of scientific practice within the [PI's] field." They found two sets of publications that exemplified this second practice.

Ultimately, the committee members concluded that the subject's actions did not rise to the level of misconduct in science. They described the subject's actions regarding the second group of publications as an "isolated lapse in judgement," and determined that he did not intentionally act to increase the number of his publications. They also concluded that his practice did not distort his publication record or the perception of his research abilities. While we disagreed with this specific conclusion, we also accepted the committee's overall view that his practices, although questionable, were not considered misconduct in science within his community.

CHARACTERISTICS of CASES CLOSED THIS PERIOD

Summary of Administrative Investigative Activity

We receive allegations of misconduct from a variety of sources, including: merit reviewers, NSF staff, scientists, engineers, graduate students, and institutional officials. We review all allegations, including anonymous allegations, and we protect the identities of those involved.

We encourage you to contact us to discuss questions or problems you may have. If the issue you present is more appropriately handled by NSF management, we will put you in contact with the appropriate NSF staff. We usually receive written (reviews, letters, e-mails) and oral allegations (by telephone or in person) in which people provide their identities. We know that some people wish to alert us to problems without identifying themselves. To assist them, we recently established an anonymous, toll-free hotline number (1-800-428-2189).

Contact Our Office

Internet:	www.nsf.gov/oig/oig.htm
E-mail:	oig@nsf.gov
Phone:	703-306-2100
Anonymously:	1-800-428-2189
or Write:	National Science Foundation Office of Inspector General 4201 Wilson Boulevard Suite 1135 Arlington, Virginia 22230

We reviewed 82 matters this period. We considered 59 administrative and 23 civil/criminal matters. Of the 59 administrative matters, 22 were concerns best suited for resolution by NSF management or misconduct allegations lacking sufficient information to allow us to proceed. One of our goals is to process cases in a timely manner. This past year, we developed case management systems that allow us to carefully monitor the progress and age of our cases, and ensure their timely resolution. We closed 37 misconduct cases this period. Twenty-nine of these cases were closed at the inquiry stage. Of the remaining 8 cases, 4 were investigations in which awardees concluded no misconduct occurred and we concurred; 3 were investigations in which awardees found that the actions were misconduct and we forwarded reports to the Deputy Director, who took action generally consistent with our recommendations. Finally, 1 case was an investigation in which an awardee censured the subject for behavior that, although not a best practice, was not, in our view, misconduct in science (see page 44).



The 34 cases were closed this period with no recommendation for a finding of misconduct involved subjects at public colleges and universities (22 cases), private colleges and universities (7 cases), government agencies (3 cases), private industry (1 case), and a foreign institution (1 case).

The primary allegations in the 34 cases included plagiarism (11 cases), false certifications or other misrepresentations (7 cases), breach of the confidentiality of peer review (2 cases), retaliation against a good-faith whistleblower (2 cases), duplicate proposal submission (2 cases), failure to share equipment or data (2 cases), violations of specific biological research regulations (2 cases), and others (6 cases), such as data falsification, abuse of colleague, discrimination, and duplicate publications.

Areas of expertise of the subjects in these cases included engineering, biology, chemistry, economics, education, geology, materials science, mathematics, and physics. As part of our information gathering, we contacted the subjects in 15 of these cases and we requested clarifications of issues from experts for four of these cases. During this period, we referred 6 cases for inquiry or investigation to awardees.

We closed 23 cases that included allegations of diversion of funds (7), false statements (2), theft of NSF-funded equipment (2), and computer intrusion (1). Eleven of the cases described issues that we referred to NSF management for resolution. This period we also focused on computer intrusions and computer investigative training. A majority of our criminal/civil investigative cases that remain open at the end of this period are related to diversion of funds or false statements. Of our 35 active cases, 15 cases were referred to Department of Justice or state prosecutorial authorities. Eight of these involve the diversion of funds and 7 involve false statements.

FOCUSED OVERSIGHT REVIEWS

Two Focused Oversight Reviews Completed This Period

We reviewed the Small Grants for Exploratory Research (SGER) program by comparing four of NSF's requirements for these awards with a random sample of award jackets. We also reviewed the reliability of publication claims made by PIs in their NSF Final Project Reports from a random sample of award jackets. Our reviews concluded that SGER proposals are prepared with a high level of integrity and care. In addition publication claims by PIs are accurate and NSF can rely on them as measures of productivity.

SGER Award Assessment

We reviewed selected SGER awards for consistency with selected program requirements. SGER awards are for "small-scale, exploratory, high-risk research" and are not subject to external merit review. Our review, which was conducted by a multi-disciplinary team of auditors, scientists and attorneys, included an assessment of 97 award jackets in four general categories – scope and budget, potential duplication of existing research awards, accuracy of credential and publication information, and conflict of interests.



We evaluated the awards to determine if the proposed research met the criteria set forth in the *Grant Proposal Guide* (e.g., risky, time-sensitive, or exploratory). Only a few awards seemed outside of the established scope of the program. Further, none of the SGER awards appeared to overlap with the PIs' regular awards. We noted that seven PIs overspent their travel budgets by more than 25 percent, and three PIs spent travel funds when no travel budget was authorized. However, we believe these discrepancies arose as a consequence of the general nature of SGER projects, i.e., short-planning periods and considerable uncertainties in project scope because of the innovative nature of the program.

Of the 97 awards reviewed, only four contained references to publications that could not be verified. These publications were either from relatively obscure journals or contained typographical errors in journal titles. Ten of the doctoral degrees could not be verified. However these degrees were from foreign universities of which it was difficult to obtain verification. We found only one instance where a PI and program officer co-authored a publication prior to the award. We found no conflict in that instance because of the amount of time that had passed prior to the award.

In summary, we found that the SGER awards were well within the scope and intent of the SGER funding initiative and that these proposals appear to have been prepared with a high level of integrity and care.

Verification of PI Publications on Final Reports

In our second review, we tested the accuracy of publication claims listed by PIs on Final Project Reports. Because these claims represent one outcome measure for awards, their reliability is important as part of the database available to NSF to assess the effectiveness of its awards. We requested a random sample of 195 award jackets from a population of 8,116 closed awards for a selected year. Of the requested jackets, 156 were received and reviewed.

We found numerous minor errors within the citations, requiring us to expend considerable effort to verify the claims. In a few instances we were only able to verify the claim by contacting the PI. We believe these errors arise through carelessness and unavoidable inaccuracies created by the delay in the manuscript submission, acceptance, and publication process. Despite these errors, we ultimately verified the existence of all the journal publications listed in the Final Project Reports in these jackets. Based on the results of our statistical sample, we concluded that PIs provide accurate information in their final reports. NSF can only rely on this information when making decisions about funding and evaluating productivity under awards.

An interesting side issue arose during our review. About 20 percent of the jackets initially requested were not retrievable over the duration of the study and we designated them as lost. If this lost jacket rate is correct, this would represent a significant control problem. We are currently assessing this matter. We shared our concerns about the apparent high rate of missing or lost jackets with NSF management. NSF management told us that the files we were seeking probably exist, but, because of various problems with the oversight of archiving these jackets, they can not be found. We are continuing to work with NSF management to resolve this matter.

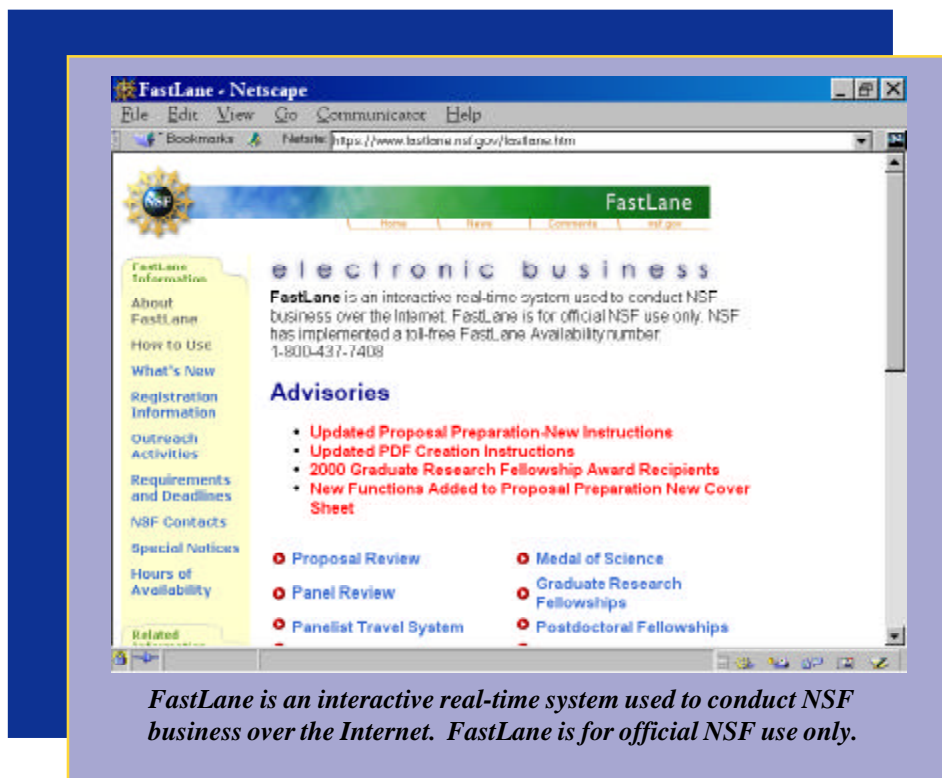
ISSUES RESOLVED WITH MANAGEMENT

We occasionally learn of matters that may arise from misunderstandings or raise operational issues that are best resolved by working with NSF research and administrative divisions. This section describes four such issues in which we worked with NSF management this period.

Redaction of Reviews Submitted via NSF FastLane

To assess the scientific merits of the proposals it evaluates, NSF frequently sends them to scientists or other experts outside the agency to review. Sometimes reviewers include allegations of misconduct as part of their reviews. It is NSF's policy that program managers bring such allegations to our attention. NSF's decision about which proposals to fund are to be based on the proposal's technical merits, not on unsubstantiated allegations of misconduct. In keeping with this policy, we typically remove (redact) such allegations from otherwise substantive and usable merit reviews. Our office separately assesses the merits of the allegations.

NSF's new electronic jacket system (FastLane) presents challenges in maintaining the separation of programmatic decision-making from allegation processing. We worked with the Division of Information Systems and the Office of the General Council to develop ways to remove such allegations from the electronic reviews and preserve the original record in our files. After the electronic redaction is completed, we replace the original review in the electronic jacket with a redacted copy, storing the original in a secure database in our office. This process preserves the original record and allows NSF to focus on review of the technical merits of the proposal.



Other FastLane Work

Two of our recent cases illustrate some of the additional challenges we face in adapting our procedures for FastLane. Although allegations of misconduct usually appear in proposal reviews or independent letters to NSF, in one instance, a PI made plagiarism allegations in two different sections of his proposal. Given FastLane's current configuration, we were unable to redact these allegations from the proposal without destroying the permanent record. We are working hard with NSF's DIS and the FastLane committee to remedy this situation.

In another instance, a program officer informed us that a PI submitted identical proposals to different divisions without informing NSF that he had done so. We learned that the PI had submitted his proposal via FastLane and later resubmitted it to correct a formatting problem. FastLane treated the resubmission as an independent proposal. Because it was sent to a different division for review, it appeared as if the PI had submitted the same proposal to different programs in an attempt to increase his funding opportunities without disclosing the duplicate submission on the cover page.

Again, we are working with NSF's DIS in order to prevent a repeat of this incident.

Recommendation to Change Award Letter

We received an allegation that a biologist at a midwestern university violated federal regulations by failing on several occasions, to obtain necessary import/export and endangered species permits. The U.S. Fish and Wildlife Service entered into a settlement agreement with the subject, and he was required to pay a significant fine, publish an article on import/export permits, perform 50 hours of community service, and refrain from participating in any specimen collection projects for one year. We considered these actions to be adequate to protect the federal interest and closed the case.

We remained concerned about possible negative repercussions to the Foundation created by the PI's failure to obtain proper permits. Although it is unusual to recommend NSF action based on one case, we decided that the potential negative effects to conservation efforts and international research relations justified doing so. In cooperation with the Directorate for Biological Sciences, we will be suggesting that NSF include language in award letters to remind awardees and PIs of their responsibilities for the timely acquisition of permits, licenses or other necessary approvals associated with specimen collection activities. In addition, we will propose that NSF request that PIs include a brief summary of all authorizations acquired for collection efforts in their final project reports.

Change to NSF's Web-based Award Abstracts

We received a complaint that abstracts available on NSF's website fail to acknowledge the authorship contributions of some PIs. The complainant indicated that these abstracts list the names of current PIs, but not those of former PIs who, although no longer associated with the funded projects, originally wrote and submitted the successful proposals. In cooperation with NSF management, we are working to revise the web-based abstracts to include the names of both current and former PIs where appropriate. We believe this change will provide credit to original authors and provide the scientific community with more accurate award information.

Resolving Complaints About an NSF Survey

We were notified of two complaints from consumer protection organizations regarding allegedly intrusive telephone calls related to an NSF survey. An NSF division contracts with an outside firm to administer this survey. After learning how the NSF division handled its complaints, we were able to aid in changing NSF's procedure to ensure that survey respondents know how to notify NSF directly of their concerns. The program official responsible for the survey said the division was "glad to have a partner" in resolving the complaints.

Statistical Data



2000

Highlights

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AUDIT REPORTS ISSUED WITH RECOMMENDATIONS for BETTER use of FUNDS

	<u>Dollar Value</u>
A. For which no management decision has been made by the commencement of the reporting period	4,495,890
B. Recommendations that were issued during the reporting period (these were issued in 1 report)	431,800
C. Adjustments related to prior recommendations	0
Subtotal of A+ B+ C	4,927,690
D. For which a management decision was made during the reporting period	4,827,690
(i) dollar value of management decisions that were consistent with OIG recommendations	3,199,575
(ii) dollar value of recommendations that were not agreed to by management	1,628,115
E. For which no management decision had been made by the end of the reporting period	100,000
For which no management decision was made within 6 months of issuance	100,000

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	27	5,047,055	1,196,368
B. That were issued during the reporting period	12	4,320,997	294,524
C. Adjustment related to prior recommendations	2	7,744,020	0
Subtotal of A+ B+ C	41	17,112,072	1,490,892
D. For which a management decision was made during the reporting period	30	15,089,322	1,175,905
(i) dollar value of disallowed costs	N/A	9,805,213	N/A
(ii) dollar value of costs not disallowed	N/A	5,284,109	N/A
E. For which no management decision had been made by the end of the reporting period	11	2,022,750	314,987
For which no management decision was made within 6 months of issuance	2	839,795	20,463

ADDITIONAL PERFORMANCE MEASURES

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

Tables that provide statistics concerning these required performance measures are on pages **43** and **44**. The General Accounting Office and OMB suggested that Offices of Inspector General develop additional performance measures that provide information about their activities. As a result, we developed two additional performance measures to provide additional insights about the work of our office. The two additional measures are “Cost-Sharing Shortfalls” and “Systemic Recommendations.”

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

We divide cost-sharing shortfalls into two categories. Shortfalls occurring during the life of a project indicate that the grantee may not be able to provide all promised resources from non-federal sources before completing the project. Shortfalls that remain when a project is complete demonstrate that a grantee has in fact not met cost-sharing obligations; these findings result in formal questioned costs. The table on page **37** provides statistical information about shortfalls occurring during the course of a project and at the completion of the project.

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

We routinely track these systemic recommendations and report to NSF’s Director and Deputy Director quarterly about the status of our recommendations. The table on page **38** provides statistical information about the status of all systemic recommendations that involve NSF’s internal operations.



AUDIT REPORTS INVOLVING COST-SHARING SHORTFALLS

	Number of Reports	Cost-Sharing Promised	At Risk of Cost-Sharing Shortfall/ (Ongoing Project)	Cost-Sharing Shortfalls at Completion of the Project
A. Reports with monetary findings for which no management decision has been made by the beginning of the reporting period	8	20,064,199	15,819,206	783,963
B. Reports with monetary findings that were issued during the reporting period	4	660,500	615,955	3,089,980
C. Adjustments related to prior recommendations	N/A	0	(7,744,020)	7,744,020
Total of Reports With Cost-Sharing Findings (A+ B+ C)	12	20,724,699	8,691,141	11,617,963
D. For which a management decision was made during the reporting period	9			
1. Dollar value of cost-sharing shortfall that grantee agreed to provide	N/A	19,737,638	8,071,997	7,825,112
2. Dollar value of cost-sharing shortfall that management waived	N/A	0	0	3,552,871
E. Reports with monetary findings for which no management decision has been made by the end of the reporting period	3	987,061	619,144	239,980

STATUS of SYSTEMIC RECOMMENDATIONS THAT INVOLVE INTERNAL NSF MANAGEMENT

Open Recommendations

Recommendations Open at the Beginning
of the Reporting Period

1

New Recommendations Made During
Reporting Period

24

Total Recommendations to be Addressed

25

Management Resolution of Recommendations¹

Awaiting Resolution

1

Resolved Consistent With OIG Recommendations

24

Management Decision That No Action is Required

0

Final Action on OIG Recommendations

Final Action Completed

24

Recommendations Open at End of Period

1

Aging of Open Recommendations

Awaiting Management Resolution:

0 through 6 Months

1

7 through 12 Months

0

more than 12 Months

0

Awaiting Final Action After Resolution²

0 through 6 Months

0

7 through 12 Months

0

13 through 18 Months

0

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

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

LIST of REPORTS

NSF and CPA Performed Reviews

Report Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds	Cost Sharing At-Risk
00-1002	Consortium	29,885	29,885	0	219,455
00-1003	Education Center	73,943	59,419	0	0
00-1004	Research Centers	277,565	11,796	0	0
00-1005	State University	27,859	0	0	0
00-1006	Institute	4,929	0	0	0
00-1007	School District	403,410	193,424	0	0
00-1008	For-Profit Company	321,559	0	0	0
00-2001	Support Contractor	0	0	431,800	0
00-2002	Financial Statements	0	0	0	0
00-2003	Management Letter	0	0	0	0
00-2004	Procedures	0	0	0	0
00-2005	Procedures Report	0	0	0	0
00-6001	Community College	0	0	0	0
00-6002	School of Medicine	0	0	0	0
00-6003	Air Force Base	0	0	0	0
00-6004	Oceanographic Institute	0	0	0	0
00-6005	Research Corporation	0	0	0	0
00-6006	Radio Observatory	0	0	0	0
00-6007	Project	0	0	0	0
	Total	1,139,150	294,524	431,800	219,455

LIST of REPORTS

NSF-Cognizant Reports

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
00-4001	Museum	0	0	0
00-4002	Observatory	0	0	0
00-4003	Behavioral Sciences Center	2,936	0	0
00-4004	Research	0	0	0
00-4005	Museum	0	0	0
00-4006	Communications Institute	0	0	0
00-4007	Museum	0	0	0
00-4008	Museum	0	0	0
00-4009	Statistical Institute	42,780	0	0
99-4010	Ecosystem Institute	0	0	0
	Total	45,716	0	0

LIST of REPORTS

Other Federal Audits

Report Number	Subject	Questioned Costs	Unsupported Costs	Cost Sharing At-Risk
00-5012	University	0	0	396,500
00-5018	School District	2,850,000	0	0
00-5019	Mining & Technology Institute	285,106	0	0
00-5025	University	1,025	0	0
	Total	3,136,131	0	396,500

AUDIT REPORTS WITH OUTSTANDING MANAGEMENT DECISIONS

This section identifies audit reports involving questioned costs, funds put to better use, and cost sharing at risk where management had not made a final decision on the corrective action necessary for report resolution within 6 months of the report's issue date. At the end of the reporting period, there were 2 audit reports with questioned costs, 1 report with recommendations for funds to be put to better use, and 1 item involving cost sharing at risk. The status of systemic recommendations that involve internal NSF management are described on page 38.

Report Number	Subject	Date Report Issued	Dollar Value	Status
Items Involving Questioned Costs				
97-2105	Technology Institute	03/31/97	641,129	1
99-1009	For-Profit Company	09/27/99	198,666	1
	Total		839,795	
Items Involving Funds Put to Better Use				
99-1033	Math Institute	09/17/99	100,000	1
	Total		100,000	
Items Involving Cost Sharing at Risk				
99-1009	For-Profit Company	09/27/99	399,689	1
	Total		399,689	

Status Code

1 = Resolution is progressing with final action expected in next reporting period.

INVESTIGATIVE ACTIVITY and STATISTICS

Investigative Activity

Active Cases From Previous Reporting Period	39
New Allegations	19
Total Cases	58
Cases Closed After Preliminary Assessments	2
Cases Closed After Inquiry/Investigation	21
Total Cases Closed	23
Active Cases	35

Investigative Statistics

New Referrals	6
Referrals From Previous Reporting Period	6
Prosecutorial Declinations	4
Indictments (including criminal complaints)	2
Criminal Convictions/Pleas	1
Civil Settlements	0
Civil Complaints	0
Administrative Actions	5
Investigative Recoveries*	\$1,501,530

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

MISCONDUCT CASE ACTIVITY and ASSURANCE/CERTIFICATIONS RECEIVED

Misconduct Case Activity

	<u>FY 1999</u> <u>Last Half</u>	<u>FY 2000</u> <u>First Half</u>
Active Cases From Prior Period	55	49
Received During Period	31	25
Closed Out During Period	37	37
In-Process at End of Period	49	37
Cases Forwarded to the Office of the Director During Period for Adjudication	4	1
Cases Reported in Prior Periods With No Adjudication by the Office of the Director	1*	2**

*This case is described in our [March 1999 Semiannual Report, page 18](#).

**These cases are described in our [September 1999 Semiannual Report, pages 17-18 and 19-21](#).

Assurances and Certifications*

Number of Cases Requiring Assurances at End of Period	4
Number of Cases Requiring Certifications at End of Period	6
Assurances Received During This Period	0
Certifications Received During This Period	0
Number of Debarments in Effect at the End of Period	2

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



GLOSSARY

Funds to be put to Better use

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

Questioned Cost

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

NSF’s Definition of Misconduct in Science and Engineering

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

For additional copies or information write

Office of Inspector General
National Science Foundation
4201 Wilson Boulevard, Suite 1135
Arlington, VA 22230

call

(703) 306-2100

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