

Audits & Reviews

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Significant Reports

Evaluation of Math and Science Partnership Projects Can Be Improved

OIG conducted an audit of the Math and Science Partnership (MSP) Program to determine the effectiveness of its evaluation processes. The audit reviewed nine partnerships funded in FY 2002 and found that five had effective evaluation plans, but four were missing key evaluation elements although steps could be taken to address these issues. Further, we found that, although NSF indicated it planned to evaluate the overall MSP program, it had not yet formalized its plans for a program evaluation process or set definitive timeframes or deadlines.

In fiscal years 2002 and 2003, NSF awarded a total of \$436.6 million for 35 comprehensive and targeted awards under its MSP program, many of which will extend over a five-year period. The legislation authorizing this program, which is intended to strengthen elementary and secondary mathematics and science education, requires evaluation processes and measures to assess the impact of intervention strategies and activities on student achievement. It also requires NSF to evaluate its overall MSP program.

To ensure that all MSP projects could report on the effect of their intervention strategies on student achievement, we recommended that NSF require that the basic evaluation elements identified in the audit report be included in all current and future MSP project evaluation plans. We also recommended that NSF

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program officers verify that the basic evaluation elements are included in current projects' evaluation plans, and where needed, work with the projects to address elements that are missing or need improvement. Finally, we recommended that NSF develop and document a comprehensive management plan for evaluating the overall MSP program that includes definitive milestones and timeframes.

NSF agreed that appropriate overall guidance for evaluations should be included in program solicitations, but did not agree that a framework of required evaluation elements is necessary. However, NSF will convene a workshop of evaluators currently engaged in MSP work to prepare an evaluation statement of practice for current and future MSP projects. NSF also stated that planning for the overall MSP program evaluation has progressed and it has issued a contract for an evaluation of the overall MSP program. Further, NSF stated it has an information system under development that will collect common data elements to be analyzed.

Additional Costs of Visiting Personnel Identified

During this reporting period, we conducted an audit to identify any additional costs associated with NSF's use of temporary professionals appointed under the Intergovernmental Personnel Act (IPA) and NSF's Visiting Scientists, Engineers, and Educators (VSEE) program, instead of permanent staff. To stay in the forefront of scientific initiatives and innovation, NSF relies on the services of highly qualified scientists and engineers in a broad spectrum of fields. NSF refreshes and supplements its permanent professional staff by hiring temporary "rotators" from the nation's research and education institutions, organizations, and industry.

NSF incurs no additional costs for employing VSEEs rather than permanent employees. However, NSF's additional costs for employing IPAs were approximately \$1.3 million annually, an average of \$8,518 per IPA, and were largely for higher salaries and compensation for lost consulting fees. As of March 2004, NSF employed 147 IPAs and 39 VSEEs at an approximate annual cost of \$23 million and \$4.6 million respectively.

The audit also found that rotators were the primary users of NSF's Individual Research and Development (IR/D) program which allow employees and rotators time off and travel funding to conduct research, usually at their home institutions. When rotators' estimated travel costs for this program are included, additional costs for IPAs and VSEEs nearly doubled to approximately \$2.4 million annually. Rotators accounted for approximately 75 percent of the active IR/Ds on file as of May 2004, and if

the estimates provided in the IR/D proposals are realized, NSF will annually contribute 5,238 staff days or the equivalent of 20 full-time positions and \$1.3 million in travel costs to support IPA and VSEE independent research.

NSF complied with Office of Personnel Management and agency rules and regulations governing rotator assignments. However, we identified a few areas where NSF could further improve its administration of the IPA and VSEE programs. For example, we recommended that NSF develop a program to automate its IPA salary and benefit computation process, in order to improve the accuracy of these computations. We also recommended that NSF explore alternative methodologies for computing VSEEs' salaries to avoid duplicating payments in determining the salary amounts. NSF generally agreed with our recommendations.

Interim Audit Questions \$29.2 Million in Costs Claimed by Antarctic Services Contractor

At the Agency's request, OIG contracted with the Defense Contract Audit Agency (DCAA) to perform an incurred cost audit of NSF's Antarctic Support Services Contractor. NSF finances and supports Antarctic research, relying on its Contractor to provide logistics and support services valued at approximately \$1.172 billion over ten years, including the five-year award and five-year option. In September 2004, DCAA staff reported on the interim results of the first phase of this audit. Of the \$363 million total costs claimed by Contractor for the three-year period ending December 31, 2002, the auditor questioned \$29.2 million because the Contractor improperly billed indirect costs to the contract.



**An aerial view of McMurdo Station Antarctica
(photo by Thomas Cross)**

The auditors questioned \$21.1 million because the Contractor did not bill indirect costs in accordance with the terms of the contract and its own disclosed accounting practices. Specifically, the Contractor claimed indirect costs as direct costs of the contract, including \$8.6 million related to home and corporate office costs, \$5.7 million related to facilities costs, \$3.4 million related to human resources costs, \$2.7 million related to financial management costs, and over \$700,000 related to sign-on bonus costs.

The auditors also questioned \$6.7 million because the Contractor claimed overhead and General and Administrative (G&A) costs that exceeded the limitations specified in the contract agreement. DCAA found that the Contractor claimed \$3.5 million and \$3.2 million for overhead and G&A costs, respectively, in excess of the contract limits. The remaining \$1.4 million was questioned because the fringe benefit costs claimed exceeded what was allowable.

We referred the audit report to NSF's Division of Contracts and Complex Agreements and recommended that NSF consider these findings in its review of the Contractor's claim for final payment. The remaining phases of the Antarctic Services Contract audit will include a review of the Contractor's internal controls for administering, monitoring, and accounting for the NSF contract funds and a review of the direct costs and remaining indirect costs charged to the contract through December 31, 2004.

NSF Awards for International Programs

International research partnerships bring together countries and scientists with a wide range of backgrounds, information, expertise and resources in the hope of fostering creative solutions to important global research problems. NSF estimates that five to ten percent of its annual budget (between \$240 and \$480 million in fiscal year 2003) is invested in activities with significant international scope. The vast majority of these funds go to U. S. institutions to support international activities and collaboration, but approximately \$60 million was awarded directly to 24 foreign institutions during fiscal years 1998-2002. As collaborative international research efforts increase in number, significance and complexity, the challenge for NSF is to develop an effective approach for managing its international activities.

Notwithstanding the many benefits of international research programs, NSF awards made directly to foreign institutions may be at increased risk for financial problems and lack of compliance with award requirements. Foreign organizations are less likely to understand U.S. grant requirements and are accustomed to different accounting practices and standards in their countries. Furthermore, NSF processes that are typically applied to awarding and administering domestic grants may not be appropriate for the unique nature of most foreign funding arrangements.

In FY 2003 we identified four foreign organizations for audit that received \$46 million or 76 percent of total award funding provided directly to foreign institutions during fiscal years 1998-2002. We are reporting on the second of these audits below and are continuing work on the two remaining foreign organizations.

NSF Disproportionately Funds Foreign Treaty Organization

In September, we issued an audit of a foreign treaty organization that since 1996 has received \$16.4 million in NSF awards for global change research. We found that NSF, on behalf of the United States, is funding a disproportionate share of the organization's total costs. Although the U.S. contribution was initially expected to comprise 25 percent of the organization's total funds, it actually represented 87 percent of its income from 1996 to 2003. This occurred because 18 other member countries did not provide research contributions in the amounts originally anticipated. As a result, the foreign organization had average annual expenditures of only \$2.6 million or 82 percent less than expected, thereby impeding its ability to achieve its research goals.

Additionally, the foreign organization needs to improve financial management and oversight of its 14 research network subawards, valued at \$10.3 million. The organization did not perform either pre-award assessments of the subrecipients' capability to administer NSF grant funds or post-award monitoring to ensure grant funds were spent in accordance with its subaward agreements. Consequently, the organization encountered serious problems with two subrecipients that could not adequately support their claimed costs on awards totaling \$1.1 million.

Funding for the organization did not materialize as expected because the foreign organization's treaty agreement required member countries to provide only *voluntary* contributions to support its operational costs and research programs. We found that the organization did not give adequate priority or attention to seeking alternate sources of funding when the shortfalls occurred. Similarly, the organization did not give sufficient priority to monitoring and improving its oversight of subawardees because it did not understand its responsibilities for NSF grants. NSF efforts to effect procedural changes in the grantee's managing and monitoring of award funds were difficult and not always successful because the changes had to be approved & implemented by the organization's governing body, which included representatives from all 19 member countries.

Given the lack of financial support by other member countries, we recommended that NSF work with the governing body to promote and oversee fundraising activities; re-assess the organization's mission, goals, and staffing levels if additional funding is not obtained; and ensure that the organization establishes written subaward management policies and procedures. Finally, we recommended that NSF cease providing additional research awards to the organization until it has developed and implemented written monitoring procedures to ensure its subawardees are properly accounting for and managing NSF grant funds.

NSF generally concurred with the audit conclusions and recommendations. NSF agreed to continue working with the organization's governing body to direct the foreign organization to give priority to fund-raising activities and to re-evaluate its programs if additional funding is not obtained. Also, the foreign awardee stated that subaward management policies and procedures were being developed and NSF agreed to provide technical assistance in this regard.

Awards to Community Colleges

Community colleges historically have received approximately \$30 to \$40 million in annual NSF funding. Prior audits of community colleges have identified questioned costs and grant accounting control weaknesses, mostly related to cost sharing, subawardee monitoring, and labor activity reporting. To assess the extent of these problems, we initiated audits over the past three years at 14 community colleges that had received 78 NSF awards totaling about \$46 million. In two prior Semiannual Reports¹, we reported on the results of eight community college audits. Since that time, we have completed an additional three audits, including the one described in the following section.

Northwestern Community College Unable to Document or Track NSF Funds

OIG completed an audit of awards to a Northwestern community college for an environmental technology-training center and for improving math and science curriculum programs in rural communities. We were unable to determine whether \$1.1 million of costs claimed by the community college were spent on those projects so we could not express an opinion on the claimed costs or cost sharing. Consequently, we questioned all of the \$1.1 million of direct costs funded by NSF and the entire \$35,000 of cost sharing required on two expired awards. We also identified another \$141,000 of cost sharing on a third award that was still active at the time of our audit as being "at-risk" that the contributions would not be made.

The community college lacked an adequate financial management system for recording the receipt and expenditure of funds for projects supported by NSF, and did not have source documentation to support the costs charged to the NSF projects. We identified these as material

¹ September 2002 Semiannual Report (pp.24-26);
September 2003 Semiannual Report (pp.22-23)

deficiencies in the community college's internal controls for administering NSF awards. Given the pervasiveness of the financial management deficiencies disclosed, we recommended that NSF identify this community college as a high-risk grantee under its risk management program. Until the community college implements corrective actions, NSF has little or no assurance that the community college will spend NSF award funds on authorized purposes or that the overall project goals will be achieved as originally anticipated. The community college acknowledged the problems identified in the audit report, and stated that since the audit was completed it had taken a number of actions to improve its internal controls. We referred the audit report to NSF's Division of Institution and Award Support for resolution.

Audits of Indirect Cost Rates

Approximately 20 percent of the \$5 billion of costs incurred annually by NSF grantees, or \$1 billion, are for indirect costs. Because of the significance of this type of expense and the risk of inflated indirect cost rates, we have undertaken audits of a sample of twelve indirect cost proposals. During this reporting period, we completed our tenth audit.

Scientific Society Needs to Improve Its Federal Award Administration and Indirect Cost Rate Proposal Preparation

OIG reviewed the FY 2000 and FY 2001 indirect cost proposals of a scientific society with offices in Washington, D.C. and the Midwest. Based on Federal cost principles, the awardee improperly included \$178,075 of unsupported travel costs in its indirect cost pools. The awardee also incorrectly excluded \$4.8 million of costs from the direct cost bases. These errors resulted in the awardee overstating its proposed indirect cost rates by 1.9 percent and 1.68 percent for fiscal years 2000 and 2001, respectively. In addition, we found that the organization did not account for all employees' activities as required by Federal cost principles to ensure that actual labor costs would be fairly charged to Federal awards.

We recommended that NSF require the organization to develop and implement written policies and procedures that covers the inclusion of all activities in the direct cost base and the retention of adequate supporting documentation for all travel costs. Further, we recommended the organization not charge direct labor or allocate indirect labor charges to any Federal awards until it maintains supporting documentation for labor charges that meets the requirements in the Federal cost principles. The organization agreed with our recommendations but stated that it should be allowed to charge labor as

cost sharing on Federal awards without accounting for labor as prescribed by Federal cost principles. We disagree and have referred the issue to NSF's designated audit resolution official for a decision.

Corrective Actions Prompted by Previous Audits

Recommendation Addressing Antarctic Infrastructure Planning Remains Unresolved

Our March 2003 Semiannual Report described an audit of the U.S. Antarctic Program's Medical and Occupational Health and Safety Programs for which we recommended that NSF initiate life-cycle planning and associate budget resources with its planned upgrades and replacements for USAP facilities.² This recommendation remains unresolved. Because we have been unable to reach resolution with NSF management on this recommendation, we are referring the matter to NSF's designated audit resolution official, the NSF Deputy Director, for a decision. The audit report is posted on the OIG website, <http://www.oig.nsf.gov/auditpubs.html>.

Large Western University System Changes Policy Allowing Excess Faculty Compensation

A western university system, that has received \$280 million in NSF funding over the last ten years, had allowed faculty to be paid up to 25 percent above their full-time academic year salary from Federal funds without prior Federal approval. However, as a result of an audit reported in our March Semiannual Report³, the university system changed its long standing position and agreed to instruct all of its campuses to clearly identify and obtain prior written NSF approval for overload compensation, or for any extra salary for faculty members during the academic year.

The specific campus we audited revised its grant policies in August 2004 to eliminate the provisions that previously allowed overload compensation. NSF officials agreed that the change in policy could result in an estimated \$800,000 of NSF grant funds that can be used for other program purposes over the next five years.

² March 2003 Semiannual Report, p.19

³ March 2004 Semiannual Report, p.16

Three Indirect Cost Rate Audits Resolved

During this reporting period, NSF resolved indirect cost rate audits previously reported in our September 2003 Semiannual Report⁴:

For a natural history museum, NSF agreed that the five percentage point reduction from the museum's proposed indirect cost rate of 55.34 percent to our audited rate of 50.02 percent would generate a projected \$594,954 savings to the Federal Government over five years. NSF also sustained \$46,326 of questionable costs that the museum charged to NSF grants. NSF will work with this organization to finalize rates from past years. However, since NSF is no longer cognizant for this organization, future rate proposals and the methodology on which they are based will be worked out with the cognizant agency.

For a Midwestern botanical garden, NSF agreed to assess how to treat \$2 million of curatorial costs. If curatorial costs are excluded from its indirect cost pool, the institution's proposed indirect cost rate would drop by as much as 46 percent. The institution agreed to make the necessary changes to its accounting system to improve its general ledger accounting for indirect costs and develop a time keeping system to document its staff work on Federal projects.

For a Midatlantic research institution, we found that the organization misclassified \$2 million of research stipends, which were de facto salary and wages, thereby overstating its five separate indirect cost rates by as much as 39 percent. The institution disagreed claiming that stipends are participant support, which is not used in the calculation of indirect cost rates. NSF agreed to discuss research stipends further with the organization and determine how such costs should be classified in calculating the institution's indirect cost rates.

Work In Progress

Grantee Reporting

We are currently conducting an audit of the timeliness of required annual and final reports from NSF award recipients. NSF collects a significant amount of information on the progress and results of the awards it funds through these reports. When a report submission is not timely, it can impact the program

⁴ September 2003 Semiannual Report, p.21

officer's ability to effectively manage the award. Furthermore, missing reports could impact NSF's ability to report to stakeholders such as the National Science Board and Congress on the contributions of funded research to science and engineering. This audit examines both the timeliness and use of annual and final project reports. We will issue our audit report during the next semiannual reporting period.

Survey of a Science and Technology Center

Because of their size and complexity, awards to Science and Technology Centers (STCs) contain more financial risk than most other NSF awards. NSF's Office of Integrative Activities requested that the OIG conduct audits of several STCs that had recently undergone significant changes in leadership and management. During this reporting period, we conducted a survey of an STC to learn more about the STC program and observe Center operations. Our survey identified several strengths in the Center's leadership and management, as well as opportunities to improve its internal controls in the areas of monitoring sub-recipients and documenting policies and procedures.

We will use the results of this survey to conduct a performance audit of two other STCs. The objective will be to assess whether each Center's management control environment supports the accomplishment of its goals and research mission. In conjunction with this performance audit, we are contracting with an independent public accounting firm to determine if the Centers have adequate financial management controls to safeguard NSF funds, properly account for payments and expenditures, and comply with award requirements, including any cost sharing. We expect to issue reports on each of these centers in the next semiannual reporting period.

Travel Cards

We recently initiated a follow-up audit of NSF's Travel Charge Card Program. The Travel and Transportation Reform Act of 1998 requires Federal employees to use a government credit card to pay for official government travel expenses such as hotels, transportation costs, and meals. This audit will examine whether cardholders are using their government travel cards properly and paying their bills in a timely manner. In addition, we will determine if NSF is adequately managing its travel card accounts. We expect to issue the audit report in the upcoming semiannual reporting period.

A-133 Audit Reports

The Single Audit Act of 1984 (Public Law 98-502), as amended, established uniform requirements for audits of non-Federal entities receiving Federal awards. Under the Act, non-Federal entities that expend \$500,000 or more a year in Federal funds are required to have an organization-wide audit (referred to as an A-133 or Single Audit) of its financial statements and compliance with Federal award requirements.

Desk Reviews

In this reporting period, we conducted desk reviews of 88 A-133 audit reports with NSF expenditures totaling \$1.1 billion between FYs 2001 and 2003. Of those reviewed, 71 reports contained reportable conditions and non-compliance findings. The most common deficiencies related to non-compliance with Federal cost principles, sub-recipient monitoring, and lack of source documentation. Questioned costs included \$415,500 of NSF grants embezzled by a university employee and \$170,199 in matching funds for which an entity was unable to provide adequate supporting documentation. In total, auditors questioned \$1,224,286 of NSF award costs claimed by award recipients.

Our office also continued to examine Management Letters accompanying A-133 audit reports, which report less significant internal control weaknesses that still require attention by the institution's management. Our examination of Management Letters in this reporting period identified six entities with internal control problems in the areas of financial management, sub-recipient monitoring, and reporting. While considered less significant at the time of the audit, we have found that internal control weaknesses that are not addressed may become more serious over time.



In June, OIG recognized staff member Shirley Ross who received a degree in computer information systems.

Single Audit Quality Project

A-133 audit reports are essential to helping NSF fulfill its responsibility for monitoring the approximately \$5 billion of awards it funds annually. However, concerns raised by Quality Control Reviews (QCRs) conducted by a number of Federal agencies have prompted the OIG community to conduct a

government-wide project to assess and provide a baseline measurement of Single Audit quality. Beginning in October 2004, the project will perform QCRs of a statistically representative sample of A-133 audits. Serving on both the Project Advisory Board and the Project Management Staff, the NSF OIG actively participated in 1) developing the sampling methodology and the evaluation instrument that will be used in the reviews, 2) drafting the Request for Proposals, and 3) selecting independent public accountants to conduct the reviews. Given the importance of A-133 audit quality to NSF's post-award administration, the OIG will continue to be involved in overseeing, conducting and reporting on the results of the QCRs.