

During this reporting period, we issued an Alert Memo and seven audit reports that included \$6.6 million of questioned costs and more than \$154 million of unallowable costs in a proposal for a major construction project. As we worked with NSF to resolve audits that had disclosed millions in unallowable contingency costs, we identified serious weaknesses in NSF's cost surveillance measures for awarding and managing cooperative agreements that the Foundation uses to construct and fund the operations and maintenance of its large facility projects.

NSF currently has nearly 700 open cooperative agreements, totaling nearly \$11 billion. To bring the serious weaknesses in NSF's processes for these high-risk high dollar awards to its immediate attention, we issued the Alert Memo. Without improving end-to-end processes over cooperative agreement monitoring, NSF cannot ensure that it receives reasonable value for taxpayer dollars and that those dollars are not misused.

NSF Needs to Establish Greater Accountability over Cooperative Agreements for its Large Facility Projects

A federal agency can use a Cooperative Agreement (CA) when entering into a relationship with a recipient when the primary purpose of the relationship is to transfer a thing of value to carry out a public purpose of support or stimulation, and substantial involvement between the federal agency and the recipient when carrying out the agreement is expected. NSF currently has 685 open cooperative agreements, totaling nearly \$11 billion; thirty-eight of these CAs are for over \$50 million each. Among other things, NSF uses CAs to construct large facility research projects and to fund their operations and maintenance. Since NSF has chosen to use CAs for the construction, operation, and maintenance of high-risk, high-dollar large facility research projects, it is imperative that it exercise strong cost surveillance controls over the lifecycle of such projects.

Over the last two years, audits of the proposed construction budgets for three large facility research projects valued at \$1.1 billion questioned approximately \$305 million (almost 28 percent) in unallowable or unsupported costs. The audits found that all three of the awardees' proposals had significant unallowable contingency costs, and two proposals were initially found unacceptable for audit. After much work, one of these proposals was audited, and the auditors issued an adverse opinion, finding that the proposal did not form an acceptable basis for the negotiation of a fair and reasonable price. The third proposal, which was submitted by an awardee found to have an inadequate accounting system, remains unaudited.

As we worked with NSF to resolve these audits, we identified serious weaknesses in NSF's post-award monitoring processes for high dollar, high-risk projects that compounded our concern that unallowable costs could be charged to awards, thereby placing federal funds awarded under CAs at further risk. NSF does not routinely obtain incurred cost submissions or audits of costs claimed on its largest CAs to determine the allowability of direct and indirect costs claimed on federal awards. While not required by law or regulation,

such submissions and audits are important tools for ensuring accountability in high-risk, high-dollar projects. In the absence of such submissions and audits, unallowable costs charged to these awards may go undetected because NSF lacks sufficient visibility over incurred costs.

Given the critical importance of the projects funded through cooperative agreements and the billions of dollars at stake, it is vital that NSF strengthen its end-to-end cost monitoring processes over high-risk CAs from the proposal stage to close out. Thus, we issued an Alert Memo to bring these weaknesses and our recommendations for improving the processes to NSF's attention.

Pre-Award

NSF's pre-award process includes a limited review of awardees' cost estimates and budgets by a panel, comprised of scientific and technical experts as well as individuals with administrative, cost, and project management experience. Based on these reviews, panels provide reports to NSF that assess whether, in the panel's view, the project can be completed within the estimated cost and contingency, in light of NSF's no cost overrun policy. The panel reviews do not reference or apply the OMB cost principles in their evaluations. Consequently, panels do not review cost proposals for overstated costs with the same level of scrutiny required in an audit. In fact, the final report from the panel reviewing one of NSF's largest CAs, noted that NSF policy does not require detailed, independent cost reviews and recommended that NSF consider having such a review performed. Despite this recommendation, NSF approved the cost estimates and made the award without an audit.

At the pre-award stage, our main concern is ensuring that, in high-risk, high-dollar projects, the agency is taking proper steps to ensure that proposals provide an adequate basis for the negotiation of project costs, and that potential recipients are capable of appropriately managing federal funds. Such steps should include (1) obtaining proposal audits for large CAs prior to award to ensure that cost estimates are reasonable; (2) obtaining audits of prospective awardees' accounting systems and estimating practices to determine whether these systems are capable of properly managing federal funds, and (3) using Form 424C or an equivalent form or process which displays allowable and unallowable costs for each budget item.

Post-Award

NSF receives certain financial reports on its large facility CAs, but these reports do not contain the level of detail needed to perform adequate cost surveillance. NSF only receives sufficient cost details from a few awardees that also have large contracts and are therefore required to provide annual incurred cost submissions. Large CA awardees that do not also have contracts are not required to provide NSF with annual incurred cost submissions.

Incurred cost submissions, or their equivalent, are important for proper cost monitoring because they provide visibility over awardees' claimed costs since they include certified schedules of direct costs by award (identified by cost

element), and applied indirect expenses. Absent incurred cost submissions or their equivalent, NSF cannot adequately monitor awardees' expenditure of government funds during the post-award stage, compounding our concern that unallowable costs could be charged to awards and go undetected.

In addition, because NSF does not have incurred cost submissions, the OIG must work with NSF and awardees to obtain submissions before an audit starts, thus excessively prolonging our audit process. For example, it took us ten months (end of June through end of April 2012) to receive one awardee's (Associated Universities Inc.) incurred cost submissions for three years. This was despite NSF's cooperation in requesting its awardee to provide the submissions.

Audits of incurred cost submissions are also critical for proper monitoring, and would reveal instances of noncompliance with federal regulations as well as costs claimed that are unallowable, unallocable, or unreasonable. The audits will provide vital information and also prevent recurrence of any infractions in future periods of the awards. NSF does not routinely require such audits for high-dollar, high-risk CAs.

Without improving end-to-end processes over CA monitoring from the proposal stage to award close-out, NSF cannot affirm that it has received reasonable value for taxpayer dollars and that those dollars are not misused. NSF needs to institute a strengthened control environment together with additional pre-and post-award cost surveillance measures to properly administer high-risk, high-dollar CAs in a manner that protects federal funds.

We recommended that NSF strengthen cost surveillance policies and procedures to ensure adequate stewardship over federal funds and that it implement increased monitoring for its largest CAs valued over \$50 million.

More than \$154 Million in Questioned and Unsupported Costs in NEON's Proposed Budget

An audit of the National Ecological Observatories Network's (NEON) \$433.7 million proposed construction budget disclosed more than \$154 million in questioned and unsupported costs. Based on the severity of these deficiencies, the auditors issued an adverse opinion stating that the proposal was not prepared in accordance with OMB requirements and did not form an acceptable basis for negotiation of a fair and reasonable price.

The audit disclosed that NEON could not provide adequate supporting documentation for \$52.3 million of proposed cost categories including labor, materials, and equipment. Other significant deficiencies included escalation based on unreasonable and inappropriate factors; consultant costs that violated OMB cost principles; unallowable food and alcohol costs; and questioned travel costs. In addition, the entire \$72.6 million in proposed contingency costs was questioned because there was a lack of evidence to support that the amounts budgeted were for events that could be "foretold with certainty as to time, intensity or an assurance of their happening" as required by OMB. The audit

also found that NEON did not provide adequate supporting documentation for the values and factors that were used as the basis for proposed contingency costs.

NEON stated that NSF's technical panels reviewed the proposal in accordance with NSF procedures. The fact that the panels accepted the proposed costs in light of the significant deficiencies cited in the audit raises serious concerns about the adequacy of NSF's process. If the review process worked as it should and was providing accountability over federal tax dollars, awardees could readily produce the necessary supporting documentation to auditors and that documentation would be sufficient to withstand independent scrutiny.

It is noteworthy that prior to this report, auditors issued three inadequacy memos over a four-month period between June and September 2011. The inadequacy memos were issued because of significant deficiencies in the cost proposal, and the inclusion of approximately \$76 million in unallowable contingency and honoraria costs. In February 2012, NEON submitted its revised proposal for audit. Completion of this audit resulted in finding an additional \$78 million of questioned and unsupported proposed costs.

We recommended that NSF require NEON to submit a revised proposed budget with adequate supporting documentation for *all* costs and that it have that proposal audited before additional funds are provided to NEON.

NSF's Management of Contingency in EarthScope Award Did Not Safeguard Federal Funds

In recent years, NSF instituted a policy of ensuring large facility construction projects do not exceed their planned budgets by requiring that "contingency" costs be included in the initial proposed budget. Previous audits of three of NSF's large facility construction projects have questioned over \$223 million in unallowable contingency costs out of total proposed costs of over \$1.1 billion.

Because of the large dollar amounts associated with contingencies in NSF awards, the risk posed by NSF's current process of funding these costs, and the complexity of the issue, we conducted an audit of the construction portion of EarthScope, a closed award, to examine NSF's management and use of contingencies. This project was awarded in 2003 for approximately \$197.4 million, including an estimated \$10.5 million for contingency.

Consistent with the three proposal audits discussed, we found that the proposed contingencies for the EarthScope projects were not supported by cost data and did not comply with the OMB cost principles. NSF and the awardees used flat percentages to determine the contingency amounts for EarthScope. We were unable to find, and project officials were unable to provide, any supporting evidence to show how these estimates were calculated, therefore, there was no evidence that they met the cost principle's "with certainty" requirement.

Without that evidence, we concluded that the budgeted contingencies were unallowable based on OMB Circulars, which state that “contributions to a contingency reserve or any similar provision made for events the occurrence of which cannot be foretold with certainty as to time, intensity, or with an assurance of their happening are unallowable.”

Further, NSF’s policies and procedures did not reflect the OMB cost principles. Some defined contingency differently and none of the contingency definitions distinguished between foreseeable and unforeseeable events as the cost principles do. NSF’s definition of contingency should be consistent with the OMB cost principles to ensure NSF’s compliance with OMB requirements, and should be consistently articulated in NSF guidance. A lack of clarity as to what constitutes contingency could undermine the agency’s ability to oversee contingency funds.

In 2011, NSF revised its contingency guidance document. The revised guidance stated that NSF expects awardees to apply estimates of the likelihood of risk factors occurring and their impact on the project budget, which should prevent awardees from using flat percentages to estimate contingency. However, verifiable support sufficient to meet OMB requirements is still necessary in order for the contingency to be allowable.

In addition, we found that a weak management control environment undermined NSF’s ability to manage contingencies. Most importantly, two of the EarthScope awardees expended nearly \$7.9 million, or 75 percent, of awarded contingency funds, but did not separately track these expenditures in their accounting systems. Thus, neither we nor NSF could confirm that the awardees spent the contingency funds for items requested in the change control board actions. This lack of clarity makes it very difficult, if not impossible, for us to determine if contingency amounts were used appropriately.

Also, NSF initially lacked visibility over EarthScope’s expenditure of contingency funds because its process, prior to centrally managing contingencies in FY 2006, permitted the awardees to execute most change control board actions without NSF’s review or approval. We found that the awardees had executed all of the existing change orders (which totaled over \$1 million), thereby limiting NSF’s ability to ensure that requests for and approval of the use of contingency, were appropriate.

Finally, in some instances NSF approved the use of contingency funds for matters that did not appear to represent the materialization of contingent events. For example, one project used \$728,875 to fund an increase in the general and administrative rate, a large portion of which was due to the awardee retaining space NSF told them it would not support. Using contingency funds for such expenses increases the risk that sufficient funds will not be available if true contingent events occur, and that project cost overruns will be obscured.

We recommended that the NSF improve its award, management, and oversight of contingency funds by strengthening its guidance, processes and internal controls. Among other things, the agency should require awardees to support

contingency estimates in budget proposals with adequate cost data and release contingency funds for unforeseeable events only when the awardee demonstrates a bona fide need supported by verifiable cost data.

NSF agreed with our recommendation to require awardees to use OMB's Form 424C. However, NSF asserted that it was already in compliance with the recommendations that contingency estimates in budget proposals be adequately supported and with OMB cost principles pertaining to contingencies. We look forward to receiving NSF's Corrective Action Plan and working with NSF officials to resolve the recommendations.

More than \$6.3 Million of Questioned Costs at the University of California, Santa Barbara

The University of California, Santa Barbara (UCSB) is among the top 30 largest NSF award recipients with 603 active awards. Through the use of computer assisted auditing techniques and data analytics, the audit questioned more than \$6.3 million of the costs claimed by the University to NSF because UCSB did not comply with Federal and NSF award requirements.

Nearly \$2 million of overcharged summer salaries resulted from UCSB's use of a complex series of mathematical calculations to maximize salary budgeted for those awards regardless of the labor effort worked by employees; we also found over \$2.8 million of excess Federal Cash disbursements because UCSB did not fulfill its grant cost share requirements. Additionally, we found approximately \$500,000 of inappropriate cost transfers into NSF awards for costs such as salary incurred after NSF awards expired, unrelated equipment purchases, and budget overruns from other awards transferred into awards with available funds.

We determined that UCSB overcharged NSF for over \$473,000 of indirect costs that were not in compliance with the negotiated indirect cost rate agreement or with NSF policy. We also found that the UCSB charged approximately \$440,000 in unallowable costs to NSF grants for items such as equipment not related to the award and equipment purchased after the grant expired.

Our audit concluded that the University had a practice of charging untimely and unrelated costs into its NSF awards. This practice continued at the University throughout our audit period and resulted in these significant amounts of questioned costs.

We recommended that NSF direct UCSB to repay the \$6.3 million of questioned costs and strengthen controls and processes over its federal awards. UCSB disagreed with the audit findings.

More than \$527,000 in Questioned Costs identified at DOSECC, Inc.

An audit of three awards valued at approximately \$3.2 million made to the Drilling, Observation and Sampling of the Earth's Continental Crust, Inc. (DOSECC) identified \$527,504¹ of questioned costs. The questioned costs

¹ Included in the \$527,504 of questioned costs are \$263,754 of costs reported in OMB A-133 reports that are being resolved by NSF.

consisted of indirect and fringe benefit costs that exceeded the rates approved by NSF; payroll costs based on documentation that was not adequate to support the charges to the NSF awards; and purchases for items that were unsupported by adequate documentation and were not allowable under federal cost principles, or were not related to the award.

We recommended that NSF resolve the questioned costs and ensure that DOSECC implements procedures to correct the problems that led to the questioned costs. DOSECC stated that it has taken corrective action to address the audit's findings.

Nearly \$30,000 in Questioned Costs for Awards to University Corporation for Atmospheric Research

As of September 30, 2011, the University Corporation for Atmospheric Research (UCAR) reported expenditures for 121 NSF awards, totaling \$949 million. An audit at UCAR questioned nearly \$30,000 of costs claimed on awards for items such as food and beverages for staff meetings and parties, and expenses for retirement parties. The audit included a review of 13 American Recovery and Reinvestment Act (ARRA) awards and concluded that ARRA funds had been properly accounted for and segregated, as required.

Recommendations included that UCAR return the questioned costs and closely monitor conference-related expenditures. UCAR agreed to repay over half of the questioned costs.

Concerns about Use of Climate Change Education Program Grants for Public Policy Advocacy

In response to a request from Senator Enzi, we begin an audit to evaluate the sufficiency of NSF's controls for ensuring that funds are not used for advocacy in grants under the Climate Change Education Program (CCEP). We first attempted to identify any requirements that prohibit advocacy in CCEP. We found that while there are government-wide requirements prohibiting the use of federal funds for lobbying, there are no such restrictions pertaining to the use of federal funds for public policy advocacy that fall short of affirmative efforts aimed at influencing legislation. Further, NSF does not have any Foundation-wide restrictions pertaining to public policy advocacy. While we closed the audit due to a lack of policy and criteria on public advocacy, we provided findings and suggestions to NSF.

We found that grant solicitations for the Climate Change Education Program contained language intended to address the issue of advocacy such as statements that projects should not "delve into advocacy" or "prescribe a specific policy position." We did not find statements pertaining to advocacy in award solicitations for any other NSF program. The statements for CCEP solicitations were vague and unclear and make it difficult for proposers to appropriately respond, for merit reviewers to accurately evaluate, and for NSF to properly enforce them.

We made several suggestions to NSF including that if it decides to retain this language in award solicitations, it should clearly articulate what the language means and provide examples of the types of activities it considers inappropriate. We further suggested that if NSF's intent is to prohibit such activity in all its programs, it should clearly and formally articulate that position and communicate it to stakeholders.

OID Participates in Recovery Accountability and Transparency Board Project

We participated in a Recovery Accountability and Transparency Board review with 15 other OIGs to identify which actions and processes have been either beneficial or posed challenges to agencies or their respective OIGs in meeting the requirements of the American Recovery and Reinvestment Act (ARRA). NSF plans to continue with some aspects of new practices implemented as a result of ARRA including monitoring awardee expenditure rates and developing interim performance measures. Likewise, the OIG will continue to utilize new auditing and outreach techniques we implemented during ARRA implementation such as data analytics.

The NSF's approach to meeting its requirements for ARRA included funding highly-rated proposals that were previously declined due to lack of available funding. This was one of the tools that enabled NSF to award most of its ARRA funds by September 30, 2009. In addition, according to NSF's Office of Budget, Finance, and Award Management staff, increased monitoring and oversight of ARRA awards, agency cross collaboration, and outreach to the scientific community led to a high rate of awardee compliance with recipient reporting requirements, program staff's increased awareness of stewardship, and improved relations between the OIG and NSF.

A-133 Audits

One third of Single Audit Findings are Repeated from Previous Audits

OMB Circular A-133 provides audit requirements for state and local governments, colleges and universities, and non-profit organizations receiving federal awards. Under this Circular, covered entities that expend \$500,000 or more a year in federal awards must obtain an annual organization-wide audit that includes the entity's financial statements and compliance with federal award requirements. Non-federal auditors, such as public accounting firms and state auditors, conduct these single audits. The OIG reviews the resulting audit reports for findings and questioned costs related to NSF awards, and to ensure that the reports comply with the requirements of OMB Circular A-133.

The 163 audit reports reviewed and referred² to NSF's Cost Analysis and Audit Resolution (CAAR) Branch this period covered NSF expenditures of \$6.8 billion during audit years 2008 through 2012, and resulted in 154 findings

² We also reviewed and rejected one report based on audit quality deficiencies. We will report on the opinions and findings for this audit upon receipt of the revised report.

at 67 NSF awardees. Seven awardees received qualified opinions on their compliance with federal grant requirements. Fifty-one of the 154 findings (33 percent), including 15 material weaknesses, were repeated from previous audits, calling into question the awardees' ability to adequately improve their management of NSF awards. Twenty findings identified by the auditors, including 6 material weaknesses, resulted in \$4.1 million in questioned costs to NSF awards, of which nearly \$1 million was caused by lack of adequate supporting documentation of the amounts charged to NSF awards. Awardees' lack of internal controls and noncompliance with federal requirements included: untimely and/or incorrect reporting of time and effort; inadequate support for salary/wages, equipment, travel, and indirect costs charged to awards; inadequate monitoring of subrecipients; inability to prepare the financial statements; and late submission of financial and/or progress reports.

We also examined 58 management letters accompanying the A-133 audit reports and found 38 deficiencies that affected NSF. Auditors issue these letters to identify internal control deficiencies that are not significant enough to include in the audit report, but which could become more serious over time if not addressed. The deficiencies included inadequate tracking, managing, and accounting for NSF costs, ineffective segregation of duties, and inadequate subrecipient monitoring. These deficiencies affected control processes that are essential to ensuring stewardship of NSF funds and preventing fraud and abuse.

Desk Reviews Find Audit Quality and Timeliness Issues in More Than Half of Single Audits

The audit findings in A-133 reports are useful to NSF in planning site visits and other post-award monitoring. Because of the importance of A-133 reports to this oversight process, the OIG reviews all reports for which NSF is the cognizant or oversight agency for audit, and provides guidance to awardees and auditors for the improvement of audit quality in future reports. In addition, OIG returns reports that are deemed inadequate to the awardees to work with the audit firms to take corrective action.

We reviewed 72 audit reports³ for which NSF was identified as the cognizant or oversight agency for audit, and found that 34 fully met federal reporting requirements. Thirty-eight reports (53 percent), including 9 of the 19 reports with ARRA expenditures, contained audit quality and timeliness issues. The quality issues we identified included 18 reports in which the Schedule of Expenditures of Federal Awards did not provide sufficient information to allow for identification of awards received from non-federal "pass-through" entities or did not adequately describe the significant accounting policies used to prepare the schedule. Twelve reports were submitted after the due date required by OMB Circular A-133. Of the 13 reports which included audit findings related to compliance with federal requirements, 6 reports (46 percent) failed to adequately present the required elements of the finding to assist auditee management in correcting the reported deficiency, and 7 reports failed to adequately present the required elements of the auditees' management's plan to correct the deficiencies reported. In addition, 7 reporting packages

³ The audits were conducted by 53 different independent accounting firms.

contained Data Collection Forms (Form SF-SAC) that failed to accurately reflect the results of the audit. Finally, 9 of the reports repeated errors which we had identified to the awardees and auditors during reviews of prior years' reports.

We contacted the auditors and awardees, as appropriate, for explanations of each of the potential errors. In most cases, the auditors and awardees either provided adequate explanations and/or additional information to demonstrate compliance with federal reporting requirements, or the error did not materially affect the results of the audit. However, we rejected one report due to substantial non-compliance with federal reporting requirements. We issued a letter to each auditor and awardee informing them of the results of our review and the specific issues on which to work during future audits to improve the quality and reliability of the report.

OIG Quality Control Review Finds Unacceptable Single Audit by Public Accounting Firm

Quality Control Reviews consist of on-site reviews of auditor documentation in support of Single Audits. Quality control reviews are an important tool for determining whether Single Audits meet government auditing and reporting requirements, and for helping to improve future audit quality.

During this period, we issued a report of our quality control review of the Single Audit of an NSF awardee. We found material audit quality deficiencies in the audit which in total resulted in an unacceptable audit, and instructed the auditors to conduct additional work. Further, due to the serious nature of the deficiencies we referred the audit firm to the Professional Ethics Division of the American Institute of Certified Public Accountants.

The audit quality deficiencies in the single audit performed at Chabot Space and Science Center resulted in a failure to appropriately identify the separate nature of the two major programs. The auditors also failed to adequately identify and test for compliance with the requirements applicable to Activities Allowed or Unallowed, Allowable Costs / Cost Principles, Period of Availability, Procurement and Suspension and Debarment, and Reporting for both major programs, as well as the requirements applicable to Davis-Bacon Act and Equipment and Real Property Management for one of the major programs. Further, the auditors failed to properly test the Schedule of Expenditures of Federal Awards. The auditors generally concurred with our recommendation to conduct additional test work in these areas, and anticipate completion of the additional work during the next period. We will review the additional work within 3 months of notification that the additional work has been completed.

OIG Follow-up Actions on Quality Control Review

Our follow-up review of the audit of WNET.ORG and Subsidiaries⁴ found that the additional work performed by the auditors generally met applicable federal requirements. As a direct result of the additional work performed in response to our QCR, the auditors identified \$525,655 in questioned costs on NSF awards, determined that the two original instances of noncompliance were in

⁴ March 2012 Semiannual Report, p.15.

fact material weaknesses in internal control over federal awards, identified two new material weaknesses in internal control over federal awards, and qualified their opinion on compliance with requirements applicable to all major programs.

Audit Resolution

University of Wisconsin Required to Fund \$405,587 in Overruns on NSF Ice Coring and Drilling Services Contract

In response to audit findings, the University of Wisconsin was required to pay \$405,587 for cost overruns on NSF's Ice Coring and Drilling Services contract for 2006-2008. The cost overruns resulted from a lack of proper internal controls.

NSF Sustains more \$166,130 in Questioned Sub-awardee Costs under the Trustees of Boston University Audit Report

In response to audit recommendations, NSF sustained \$166,130 in questioned costs for two sub-awards under an award to the Trustees of Boston University, and the University agreed to strengthen its sub-awardee monitoring. The sustained questioned costs included management and consultant fees.

Non-Profit Improves Travel Policies and Strengthens Internal Controls

In response to audit recommendations, the Institute for Defense Analyses, a non-profit corporation which operates a Federally Funded Research and Development Center, improved its travel policies and internal controls to help ensure that claimed costs are reasonable and adequately supported.

NSF Issues Guidance for Large Facilities, which Closes Final Recommendations of Gemini Audit

In response to outstanding audit recommendations from 2001, NSF has issued policies for large facility projects that include financial, risk, and cash management guidance for project managers overseeing those facilities currently under construction. During this reporting period, NSF conducted training for its project managers and other interested staff, which resulted in closing the final remaining recommendation from the Gemini Audit.

NSF Addresses Concerns Identified in Evaluation of its Facebook Site

In response to our recommendations, NSF has acted to implement suggestions with regard to content control, disclaimers, and potential conflicts of interest on its Facebook site.

