National
Science
Foundation

NSF

Office of
Inspector
General

Semiannual
Report to
Congress

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About The National Science Foundation...

The National Science Foundation (NSF) is charged with supporting and strengthening all research discplines, and providing leadership across the broad and expanding frontiers of science and engineering knowledge. It is governed by the National Science Board which sets agency policies and provides oversight of its activities.

NSF invests approximately $7 billion per year in a portfolio of more than 35,000 research and education projects in science and engineering, and is responsible for the establishment of an information base for science and engineering appropriate for development of national and international policy. Over time other responsibilities have been added including fostering and supporting the development and use of computers and other scientific methods and technologies; providing Antarctic research, facilities and logistic support; and addressing issues of equal opportunity in science and engineering.

And The Office of the Inspector General...

NSF's Office of the Inspector General promotes economy, efficiency, and effectiveness in administering the Foundation's programs; detects and prevents fraud, waste, and abuse within the NSF or by individuals that recieve NSF funding; and identifies and helps to resolve cases of misconduct in science. The OIG was established in 1989, in compliance with the Inspector General Act of 1978, as amended. Because the Inspector General reports directly to the National Science Board and Congress, the Office is organizationally independent from the agency.

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From the Inspector General

This Semiannual Report to Congress highlights the activities of the National Science Foundation, Office of Inspector General for the six months ending September 30, 2011. During this period, our investigative staff closed 50 investigations, had 5 research misconduct cases result in findings by NSF, and recovered $12,903,449 for the government. In addition, eleven audit reports and reviews were issued which identified $201,756 in questioned costs and nearly $76 million in funds put to better use.

During the past six months, we completed several cases with significant monetary recoveries for the government. An investigation of overcharges by the contractor that provides support for the U.S. Antarctic Program led to the recovery of $11.4 million. A joint investigation of false claims made under NSF grants led to a settlement agreement requiring a Georgia college to reimburse the government $1.2 million and enter into a five-year compliance plan. Expenses charged to the NSF grant included personal purchases and travel. Four ongoing investigations of fraud and duplicate funding involving NSF awards resulted in $875,000 being either recovered from awardees or retained by the government.

An audit completed during the last six months made recommendations to NSF regarding oversight of financial conflicts of interest at institutions receiving NSF awards. An audit of grants management processes at an Alaska university found that more than $533,000 of grant funds were expended inappropriately on food and entertainment, among other things. Auditors also indentified $76 million in unallowable contingency costs in the bid to build the National Ecological Observatory Network.

Taxpayers expect government managers to be prudent custodians of agency funds in both good times and bad, but expectations are even higher when budgets are tight. In tough economic times Federal agencies and programs must make every dollar count; exercise the most stringent oversight; and ensure these standards apply whether the money is being spent by NSF awardees or internally within the Foundation.

Recently the OIG has performed reviews to examine expenditures at NSF and identify possible cost savings, as well as changes that could lead to efficiencies and could reduce fraud, waste, and abuse. We previously assessed the amount NSF spends to provide light refreshments to peer review panelists. During this reporting period, we assessed NSF's purchases of wireless devices and services, which in FY 2010 amounted to $660,000. Like the earlier review, the report cited the need for a centralized procurement process which could result in economies of scale when purchasing, and concluded that the agency should establish a policy to guide the purchase, distribution and use of wireless technology. NSF has been responsive to our recommendations.

There are many opportunities to conserve money within a $7 billion dollar organization like NSF without having an adverse impact on the agency's core mission. My office will continue to focus on identifying opportunities for cost savings or funds that can be put to better use.

I look forward to a continued partnership with the Congress and with NSF in advancing our shared mission of safeguarding federal tax dollars awarded by the Foundation and in protecting the integrity of NSF's programs and operations.

Report Highlights

- Our investigation of overcharges by the contractor that provides support for the U.S. Antarctic Program, which began pursuant to a referral from the Office of Audit, led to the recovery of $11.4 million in wrongful contract charges.

- An investigation involving a PI at a Georgia college who submitted false claims to NSF and NASA grants over a five year period led to a settlement agreement requiring the college to reimburse the federal government $1.2 million. The college also agreed to a five-year compliance plan and did not renew the PI's employment contract.

- More than $875,000 was recovered from four ongoing cases. In one case, an employee at a Delaware university charged fraudulent and unallowable costs to an NSF award and, during our investigation, altered records to transfer improper costs off the awards. In another case, involving duplicate funding related to NSF and Department of Energy awards, NSF terminated an award in response to our recommendation, providing NSF with more than $261,000 in funds put to better use.

- An audit of NSF's oversight of grantee institutions' financial conflicts of interest programs found that NSF policy does not require it to provide monitoring and oversight of grantee institutions' implementation of their conflicts programs. In addition, institutions are not required to notify NSF when they permit research to continue without imposing restrictions on an identified conflict. As a result, NSF cannot be assured that the institutions are properly managing, reducing, or eliminating conflicts of interest or that unmanageable conflicts are being reported to NSF.

- Auditors found that the $433.7 million cost proposal for construction of the National Ecological Observatory Network included approximately $76 million in unallowable contingency costs. Problems with contingencies in this award are similar to those reported previously. Since September 2010, a total of $226 million in unallowable contingencies in cost proposals for three large construction projects has been identified.

Report Highlights

Investigations

CIVIL AND CRIMINAL INVESTIGATIONS

We investigate violations of federal civil and criminal statutes by applicants for and recipients of NSF funds, as well as NSF employees and contractors. When we find substantial evidence of wrongdoing, we refer cases to the Department of Justice for prosecution and recommend administrative action by NSF in appropriate circumstances.

Our investigations yielded significant results during this reporting period, including resolution of a case against a major university with a $1.2 million settlement and five-year compliance plan; recovery of more than $875,000 in four ongoing cases; and arrests in two cases.

Recovery of $11.4 Million of Wrongful Contract Charges

We investigated overcharges by the contractor that provides support for the U.S. Antarctic Program. The overcharges, which were identified by an audit and referred to the Office of Investigations, occurred because the contractor reclassified allocations of indirect costs from its corporate parent headquarters as direct costs in the contract, in a manner inconsistent with its Disclosure Statement. This resulted in non-compliance with applicable Cost Accounting Standards. Following our investigation, we referred the matter to the U.S. Attorney's Office for consideration of civil action under the False Claims Act. After further investigation and coordination with the Department of Justice, the U.S. Attorney declined to initiate civil litigation and returned the matter to OIG to work with NSF management to develop a resolution.

Subsequently, NSF management entered into discussions with the contractor over the cost impact of the noncompliance. NSF and the contractor agreed that the total amount that the contractor mischarged was $10.8 million in direct costs, as confirmed by the audit. Of this amount, NSF recovered $6.9 million by reduction of the contractually authorized Annual Program Plan ceilings. The remaining $3.9 million will be excluded from the final invoice. The indirect costs and award fees associated with these amounts constitute an additional $600,000 of recovered funds.

College Misuses NSF and NASA Funds, Repays $1.2 Million

Our joint investigation with NASA OIG involving a PI at a Georgia college who submitted false claims to NSF and NASA grants over a five year period led to a settlement agreement requiring the college to reimburse the federal government $1.2 million. The college also agreed to a five-year compliance plan and did not renew the PI's employment contract.

Our investigation revealed that the PI charged personal travel costs to an NSF grant and two NASA grants, used grant funds for personal purchases, and charged expenses for an art exhibit such as advertising and printing. The PI also charged the federal grants for activities related to his personal interest in art such as trips to attend art exhibits, festivals, and meetings with art experts all over the world.

Company Owner Indicted for Fraudulently Obtaining Award Money from the STTR Program

The owner of a South Dakota company was indicted by a federal grand jury for 11 counts of submitting false claims, making false statements to the government, wire fraud, and receiving stolen government money in relation to a $150,000 Small Business Technology Transfer (STTR) award for a project to be carried out in conjunction with a South Dakota university. The company owner lied when he certified to NSF that the PI was primarily employed by the company, as required by the STTR program—in fact, the PI was not employed by the company. When the owner received the initial $100,000 payment from NSF, he converted most of it for his personal use.

The company owner was arrested following his indictment, and his trial is scheduled to begin in November 2011.

Florida Company Owner Arrested for Fraud and Misuse of NSF Logo

Our investigation found that a Florida company was using the NSF name and logo fraudulently for commercial gain. The company posted NSF's logo on its website and falsely claimed that NSF inspected and audited its laboratories. NSF does not have the responsibility or authority to inspect commercial laboratories, or to endorse commercial products. NSF special agents, with assistance from agents with Homeland Security Investigations, executed a search warrant of the company and arrested the owner. The sworn complaint alleges that the owner committed wire and mail fraud, conspiracy, and misuse of a federal government seal.

More Than $875,000 Recovered in Four Ongoing Investigations

Most investigations of wrongful charges to NSF awards result in repayment, restitution, or funds put to better use concomitant with the conclusion of criminal or civil legal action. In the following four cases, over $875,000 of award funds were either recovered or retained by NSF and put to better use, even as the investigations continue.

- We determined that a PI at a Georgia university was also employed full-time as a tenured professor at a foreign university, unbeknownst to either institution. The PI resigned and accepted a position at a Massachusetts university. The PI had one active NSF award at the Georgia university—however, based on our recommendation, NSF terminated the award, resulting in $295,933 funds put to better use.

- A second ongoing investigation disclosed that an employee at a Delaware university charged significant travel expenses to an NSF award that were unrelated to the award. The university found $133,000 to be unallowable, and our investigation found an additional $156,000 of fraudulent and unallowable costs. During our investigation, the employee manipulated account information and records to transfer improper costs off the award. Our investigation and the university's review are ongoing, and we anticipate additional recoveries.

- A joint investigation with the Department of Energy (DOE) regarding duplicate funding related to NSF and DOE awards, found significant evidence that the NSF award was duplicative. NSF accepted our recommendation and terminated the award, providing NSF with $261,509 to put to better use. The matter was referred to the U.S. Attorney's Office, and the joint investigation is ongoing.

- In the fourth ongoing investigation, a PI at a Texas university improperly subcontracted work on his NSF grant to a company in which he had 25 percent ownership. The PI falsely represented to the university that the company was selected competitively. We confirmed the PI's misrepresentation, and the university immediately cancelled the subcontract and returned $30,000 which had been charged to the grant.

Two Former PIs Face Criminal and Civil Consequences for Fraud

A former PI from a New Jersey university pled guilty to theft of federal funds in U.S. District Court. The PI submitted fraudulent claims to the university for travel associated with his research for two NSF grants and an Army contract. He fraudulently reported that he attended conferences in New York City, Miami, New Jersey, and China, and created false registrations and receipts to support his fraudulent reimbursement claims.

For two costly trips to China, the PI submitted receipts that obfuscated the fact that he was hundreds of miles away from the conferences he claimed to have attended. The university terminated the PI, and as part of the plea agreement, the former PI paid restitution of $14,075 to NSF and $5,744 to the Army. He was sentenced to one year unsupervised probation; and ordered to pay a $5,000 fine. Civil claims based on the PI's fraud are pending.

A former professor of an Indiana university was indicted on federal charges of theft and mail fraud due to his misuse of NSF grant funds. Our investigation determined that the professor used NSF grant funds to purchase items for

personal use. The university conducted its own investigation and dismissed the professor. Based on our recommendation, NSF suspended the former professor government-wide, pending the conclusion of our investigation.[1]

Two Awardees Repay Funds and Implement Strengthened Internal Controls to Avoid Future Wrongdoing

Our proactive review of awards with no final project reports that had post award requests for funds, identified an award to a community college system that drew down $225,000 over 15 months after the expiration of the award. A portion of the post-award funds had been used for payments to the project manager and external evaluator, as well as a duplicate payment to the PI. As a result of our investigation, the university returned $31,764 to NSF and hired new personnel—including a chief administrative officer to coordinate administrative and financial efforts, and a grant compliance officer to assist faculty with reporting, in order to strengthen its internal controls to prevent similar unallowable payments in the future.

Our investigation involving a PI with three NSF awards found that the PI was using NSF award money for personal benefit. Our review of the PI's financial records revealed multiple charges made with purchase cards that were approved by the university, but did not have proper supporting documentation. The university acknowledged that it had not provided the proper oversight of the use of purchase cards and returned $5,000 for mischarges to its NSF awards. The college made several administrative changes to strengthen its internal controls to prevent similar unallowable payments in the future, including implementing training on the use of purchase cards for federal awards and providing detailed guidance to its budget manager on allowable and unallowable charges.

Criminal Wrongdoing by Four NSF Employees

We found that four NSF employees committed criminal wrongdoing arising from their federal positions.

* A former NSF Senior Executive Service employee pled guilty in federal court to felony charges for making a false financial disclosure to NSF and for filing a false federal tax return.[2] The former employee was sentenced to two years probation, 200 hours of community service, and six months home detention with electronic monitoring. He was also ordered to pay restitution of $15,393 and a $100,000 fine. We recommended that NSF debar this individual for ten years, and NSF's decision is pending.

* Another NSF employee misused $3,220 of transit subsidy funds. The employee signed up for the subsidy, received the SmarTrip® card used in the D.C. area transit system, and gave the card to her daughter to use while the employee continued to commute by car. She also applied for a higher subsidy when the subsidy cap was raised, as well as a $945 "reimbursement" for commuting costs she had not incurred. The employee admitted

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1 March 2011 Semiannual Report, p.22.
2 March 2011 Semiannual Report, pp.20-21.

responsibility and, because her actions constituted theft of federal funds, we referred the matter to the U.S. Attorney's Office. The employee agreed to a pretrial diversion: if she remains employed, repays the money, performs 50 hours of community service, and avoids other wrongdoing, she will not be prosecuted. We referred the matter to NSF management, which issued her a letter of counseling.

- The third employee, who was under investigation by the FBI, pled guilty to submitting false statements to several federal agencies in employment applications. The employee falsified information about prior arrests, convictions, terms of imprisonment, salary history, roles at previous federal agencies, and the unfavorable circumstances under which she resigned from a prior federal position. We referred this matter to NSF management, which terminated this employee.

- The fourth employee pled guilty after indictment by a Virginia grand jury, to forgery charges, identity theft, and possession of a controlled substance. She was sentenced to two years in prison with 361 days suspended, followed by two years supervised probation. We referred this matter to NSF management, which terminated this employee.

RESEARCH MISCONDUCT INVESTIGATIONS

Research misconduct damages the scientific enterprise, is a misuse of public funds, and undermines the trust of citizens in government-funded research. It is imperative to the integrity of research funded with taxpayer dollars that NSF-funded researchers carry out their projects with the highest ethical standards. For these reasons, pursuing allegations of research misconduct by NSF-funded researchers continues to be a focus of our investigative work. In recent years, we have seen a significant rise in the number of substantive allegations of research misconduct associated with NSF proposals and awards. The NSF definition of research misconduct encompasses fabrication, falsification, and plagiarism.

NSF takes research misconduct seriously, as do NSF's awardee institutions. During this reporting period, institutions took actions against individuals found to have committed research misconduct, ranging from letters of reprimand to delayed promotions and loss of salary. During this period, NSF's actions in research misconduct cases ranged from letters of reprimand to three years of debarment.

We referred nine cases to NSF, which are summarized below. NSF's decisions are pending in eight of the nine cases.

Faculty Member Blames Students for Plagiarized Text in Multiple NSF Proposals

A faculty member PI at an Illinois university plagiarized text into seven NSF proposals submitted over a period of five years. In the proposal containing the largest amount of plagiarism, an extensive section of text was copied directly

from a review article. The PI admitted that he gave the review article to a student so that the student could prepare background material for the proposal. However, despite his knowledge of the student's poor English composition skills, the PI did not recognize the text was copied. We agreed with the university's finding that the PI was responsible for the plagiarized content in all of the proposals. We recommended that NSF: make a finding of research misconduct; send a letter of reprimand; debar the PI for one year; require certifications and assurances for four years after debarment ends; prohibit the PI from serving as an NSF reviewer for three year after debarment ends; and require the PI to complete a course in the responsible conduct of research (RCR).

Faculty Member Plagiarizes Text in Six NSF Proposals

Another faculty member PI at the same Illinois university plagiarized text into six NSF proposals submitted over a three-year period. The PI admitted that he cut-and-pasted material from a variety of sources for the background and experimental sections of his proposals. He claimed that he intended to revise the text and provide references at a later time. The PI also blamed students for some plagiarized text in other proposals. The university found, and we agreed, that the PI was responsible for the content of the proposals, and that his standard practice of proposal preparation was flawed and showed a disregard for scholarly standards. We recommended that NSF: make a finding of research misconduct; send a letter of reprimand; require certifications and assurances for four years; prohibit the PI from serving as an NSF reviewer for four years; and require the faculty member to complete an RCR course.

Multiple Cases of Plagiarism in SBIR Proposals

One of our focus areas is fraud in NSF's SBIR program. In addition to activities we undertake as part of the CIGIE SBIR Working Group and a group of special agents from thirteen federal agencies discussed previously,[3] we also carry out proactive reviews of SBIR awards and awardees exhibiting fraud risk factors. As a result, we currently have more than 40 open matters involving SBIR companies and awards, and we anticipate that more will be forthcoming. When we identify issues that have arisen in multiple cases, we may recommend that the NSF SBIR program implement changes to address the issues, which we did recently, as discussed on page 11. In the three cases discussed below, which came to our attention through a variety of sources, we found significant amounts of plagiarism in SBIR proposals. As a result, in the fraud awareness presentation that we provide biannually to all of NSF's SBIR Phase I awardees,[4] we now emphasize that the standards of scholarly conduct are the same for SBIR proposals and awards as for all other NSF proposals and awards.

In the first case, we established that a researcher copied hundreds of lines of text into six SBIR proposals. The researcher copied broad swaths of text from documents authored by other SBIR firms, from patent applications, and from the scientific literature, without quotation, citation, or reference. None of the proposals was funded, and, while the cumulative amount of plagiarism was

3 See March 2011 Semiannual Report, p.32.
4 See, e.g., September 2009 Semiannual Report, p.32,

substantial, the amount in each proposal was not sufficient to warrant debarment. NSF agreed with our recommendations and: made a finding of research misconduct; sent a letter of reprimand; required three years of certifications and assurances; prohibited the PI from serving as an NSF reviewer; and required the researcher to complete an RCR course. The researcher appealed the finding, and NSF's decision is pending.

In a second case, the CEO/PI of a small business submitted an SBIR proposal containing a significant amount of text copied from six sources. The PI told us he did not know whether he or one of his colleagues copied the text, but he took full responsibility. He said the small two-person company previously had no process of proposal review, but that, due to the allegation raised, he was implementing policies to prevent and detect future plagiarism. We concluded that the PI committed plagiarism, and, based on our recommendations, NSF made a finding of research misconduct against the PI; sent him a letter of reprimand; required certifications for a period of two years; and required certification of attending an ethics class within one year.

In a third investigation, the president of a small business submitted six proposals containing plagiarism. During the investigation, he acknowledged the proposals contained inadequately cited text, but said the copying was unintentional. He attributed the plagiarism to his lack of awareness of the requirement to cite the same source whenever it is quoted throughout a proposal, and his focus on the research ideas contained within the proposals. He claimed he has taken corrective measures to ensure proper citation; however, the amended proposals he provided to our office to illustrate that he now understood rules of proper citation made it clear that he still did not understand how to adequately cite material he incorporates into his proposals. We concluded that the president recklessly committed plagiarism, and recommended that NSF: make a finding of research misconduct; send him a letter of reprimand; require certifications and assurances from him for a period of two years; and require certification of attending an ethics class within one year.

Ghost Writing Research Faculty Member Plagiarizes in NSF Proposal

A new research faculty member at a New York university plagiarized text and a figure from published articles in an NSF proposal submitted under the names of a university dean as PI and department chair as co-PI. The proposal did not name the research faculty member as an author of the proposal, contrary to NSF guidance on proposal preparation. The PI and co-PI asserted that inclusion of the research faculty member's name as senior personnel in the budget justification was sufficient to acknowledge his authorship. We disagreed and referred an investigation to the university, which determined that the research faculty member committed plagiarism. We concurred with the university and recommended that NSF: make a finding of research misconduct against the faculty member; require certifications and assurances for two years; require completion of an ethics course; and ban him from serving NSF as a reviewer, advisor, or consultant for two years.

Department Chair Plagiarizes in Multiple NSF Proposals

Our investigation determined that a department chair at a Michigan university plagiarized text and figures into three NSF proposals he submitted as PI. The PI implicated a laboratory manager in his department who provided some of the copied material in one of the proposals. However, the university investigation determined that the manager was unaware that the material was to be used in a proposal, did not edit or revise the proposal, and (contrary to NSF guidance) was not listed as an author. We agreed with the university's conclusion that the PI was responsible for the plagiarized content in all three proposals. We recommended that NSF: make a finding of research misconduct; send a letter of reprimand, require two years of certifications and assurances; prohibit the PI from serving as an NSF reviewer for two years; and require the PI to complete an RCR course.

New Faculty Member Plagiarizes from a Declined NSF Proposal

A new professor at a South Dakota university knowingly plagiarized a significant amount of text in a proposal he submitted to NSF as PI. When the PI had been a postdoctoral researcher, his mentor received a confidential proposal to review for NSF—instead of reviewing the source proposal himself, the mentor asked the PI to review it because of the PI's expertise in the particular methodology. When we brought the identical text to the PI's attention, he admitted that he copied from the proposal he received from his mentor. The university's investigation concluded that the PI had knowingly plagiarized, but there was not sufficient evidence to show that the PI was informed or aware of the confidential nature of the proposal he was asked to review. We concurred with the university and recommended that NSF: make a finding of research misconduct; require certifications and assurances for two years; require completion of an RCR course; and ban the PI from serving NSF as a reviewer, advisor, or consultant for two years.

The mentor admitted to not obtaining the required permission from NSF before sharing the proposal with his postdoc. Because there was no evidence that the mentor committed any other inappropriate acts, we admonished him about the importance of confidentiality in the peer review process and closed his case with no further action.

PI Relied on Consultant's and Student's Plagiarized Text

Our investigation concluded that a Texas PI plagiarized into an assessment paper, which he had prepared and provided to one of NSF's programs at the request of a program officer. The PI had received preprints of articles from a researcher, which he provided to a consultant and a graduate student who helped prepare the paper. The PI said he failed to recognize that the paper contained verbatim text from the preprints without citation. The university concluded that plagiarism occurred, and the PI's failure to adequately review the consultant's and graduate student's work constituted a significant departure from the accepted practices of the research community. The university concluded the PI recklessly plagiarized, and delayed the PI's appointment to a chaired professorship and denied him summer salary. We concurred with the

university and recommended that NSF: send the PI a letter of reprimand informing him it has made a finding of research misconduct against him; require him to complete an RCR course and provide certifications for one year.

OIG Finds Insufficient Evidence That a Researcher Committed Research Misconduct

Our office was notified by a Pennsylvania university that it had initiated an inquiry into allegations of research misconduct by an NSF-funded PI. The allegations included falsifying research data, and concealing, deleting, or otherwise destroying emails related to the data falsification. The university never received any formal allegations against the PI; rather, the university initiated its inquiry to pursue allegations based on publicly released documents and articles.

Following inquiry and subsequent investigation, the university determined there was no substance to the allegations. During our review of the university's investigation report, we were concerned that the university did not adequately review the allegation of data fabrication. Therefore, we initiated our own investigation and interviewed the subject as well as several experts in the research field who were critical of the subject's research. Much of the current debate related to these allegations focuses on the viability of the statistical procedures the PI employed, the statistics used to confirm the accuracy of the results, and the degree to which one specific set of data has an impact on the statistical results. These concerns are all appropriate for scientific debate and to assist the research community in directing future research efforts to improve understanding. Such scientific debate is ongoing but does not, in itself, constitute evidence of research misconduct. Therefore, based on our review of the information available and the aforementioned interviews, we determined that there was insufficient evidence to support an allegation of research misconduct.

Actions by NSF Management on Previously Reported Research Misconduct Investigations

NSF has taken administrative action to address our recommendations on seven research misconduct cases reported in previous semiannual reports. In each case, NSF made a finding of research misconduct, issued a letter of reprimand, and required completion of a course in ethics training. NSF also took additional significant actions in response to our recommendations as summarized below.

- In the case of a lab technician at an Illinois university who fabricated data for a series of assay measurements,[5] NSF debarred the individual for three years, required certifications and assurances for three years after debarment ends, and prohibited the technician from serving as a reviewer of NSF proposals for six years.

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5 September 2003 Semiannual Report, p.10.

- We reported on a graduate student at a Vermont university conducting NSF-funded research who intentionally falsified data and results, initially withholding the truth regarding her actions from her advisor, the PI.[6] NSF accepted our recommendation to debar the student for three years, and require certifications and assurances for three years following the debarment period.

- NSF debarred a Florida PI for two years for receiving funding from three agencies for the same project.[7]

- NSF proposed a one-year debarment of a Louisiana university administrator who knowingly copied a funded NSF proposal into his own proposal for a substantially similar project.[8] NSF also required certifications, assurances, and a ban from serving as a reviewer of NSF proposals for 3 years following the debarment period. The final debarment notice is pending.

- NSF required three years of certifications and assurances and prohibited service as an NSF merit reviewer for an Indiana university professor who plagiarized in two proposals.[9]

- NSF required a PI at an Alabama university who plagiarized in three NSF proposals to submit certifications and assurances for two years.[10]

- NSF required certifications and assurances from a PI at an Alabama university who plagiarized into two proposals he submitted to NSF.[11] NSF also barred the PI from serving NSF as a reviewer for one year.

ADMINISTRATIVE INVESTIGATIONS

Employee Abuses NSF's Electronic Systems

Our investigation, in response to an allegation of time and attendance abuse, found that an NSF employee often manually changed her sign-in time and frequently failed to sign out. The employee also used her NSF position to engage in several deceptive schemes. She falsified her NSF Earnings and Leave Statement to have it show she made less than she did, so she could claim greater subsidy for her child at a child care center. She sent an email to her co-worker asking him to lie to social services about being her supervisor, how much she earned at NSF, and her leave status. The employee also permitted family members to identify her as their work supervisor on their résumés, even though the employee is not a supervisor at NSF and none of her family members has ever been employed at NSF. We referred the matter to NSF management for consideration of appropriate personnel action, which is pending.

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6 March 2011 Semiannual Report, p.24.
7 September 2010 Semiannual Report, p.12.
8 September 2010 Semiannual Report, p.9.
9 March 2011 Semiannual Report, pp.25-26.
10 March 2011 Semiannual Report, p.25.
11 March 2011 Semiannual Report, p.26.

MANAGEMENT IMPLICATION REPORTS

Review of NSF Wireless Device and Service Purchases

Our review of wireless device and service purchases made by NSF offices identified nearly $530,000 in such purchases in FY 2009 and more than $660,000 in FY 2010. NSF owns more than 700 wireless devices, including smart phones and tablets, for approximately 1,500 staff.

We found that NSF's ad hoc, decentralized process for purchasing wireless assets and services has resulted in a myriad of devices and plans across the Foundation, and frequently even within individual offices. NSF does not have a policy for the procurement and use of wireless devices and services, nor does it have any policy regarding which NSF staff *need* wireless devices or which devices are appropriate for their needs.

Further, individual offices within the agency generally purchase devices and plans on an item-by-item basis. Because the purchases are small and not made centrally, NSF had not taken advantage of economies of scale or government-wide purchasing programs through the General Services Administration.

We identified wide ranges in the costs paid for the variety of wireless devices, service plans, international charges, and roaming expenses across the Foundation. For example, one office issued 40 smart phones to its staff with a variety of service plans that ranged from $50 to $100 per month. Another office provided smart phones to 5 of its program officers with expansive plans for $150 per month.

In addition to these matters, we found that many of NSF's wireless devices had not been certified to meet federal encryption standards. To protect the integrity of the data stored on agency wireless devices, OMB has required federal agencies to use only devices that comply with federal encryption standards. NSF carried out its own testing and risk analysis, and concluded that the security on the non-compliant devices was adequate.

We concluded that, in the current fiscal environment, NSF's practice of purchasing wireless assets and services without a policy warrants reassessment. We recommended that NSF:

- Develop and implement an agency-wide policy on the purchase and use of wireless devices, which should include assessment of which staff positions actually need wireless devices, the device functions needed to perform official duties, guidelines for appropriate use, the service plans needed to perform official duties, and the providers from which those devices and service plans are available. NSF agreed to do so.

- Provide centralized procurement of wireless devices and service plans to ensure NSF can monitor and manage costs, and receive the benefit of economy of scale purchasing, taking advantage of relevant GSA contracts. NSF agreed to prepare an assessment of the costs, benefits, and feasibility of a centralized approach to procurement of wireless devices, including programs offered by GSA.

- Require each user who possesses or receives a wireless device to acknowledge, in writing, his or her understanding of the appropriate use guidelines, and recognition that the device is federal government property and the user has no right of privacy; if feasible, implement a banner notice for all NSF-provided wireless devices, providing the same information provided when logging into NSF's computer network; address the issue of security and use of wireless devices in its annual IT security briefings; and update its internal policy on personal use of IT resources to include wireless devices and services. NSF agreed to all of these recommendations.

Changes Recommended to the SBIR / STTR Program to Reduce Risk of Fraud

We reviewed recent investigations related to the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs, to determine whether NSF could reduce the risk of fraud by requesting additional information from awardees. One recurrent issue involved the requirement that SBIR / STTR companies carry out a certain percentage of the research work themselves. We identified SBIR / STTR firms that did not either own or rent space to perform the funded work. In some cases, these companies improperly used facilities at research universities that were available to them through outside positions they held at the universities.

The PIs on SBIR / STTR awards are required to be primarily employed by the company during the award. Several investigations identified company owners taking advantage of students or family relationships to circumvent this rule. In these cases, the individuals identified by the companies as PIs were not the individuals responsible for the proposed research, but named as PIs in the proposals only because the persons conducting the research were ineligible due to the primary employment rule. In some cases, issues with company facilities and PI relationships were interrelated, because professors created outside companies with students, spouses, or other family members identified as PIs and the actual research was all carried out in the PI's university laboratory.

To address these vulnerabilities, we recommended that NSF take the following actions regarding the SBIR / STTR programs:

- Require proposals to contain contracts, agreements, or letters of support from research institution partners that are submitted or signed by someone other than an individual named as working on the project or receiving funds;

- Require awardees using outside facilities to provide proof of an existing rental or facility use agreement upon the start of an award and in the interim and final reports;

- Require awardees to list all company officers and disclose their primary employers prior to each award; and

- Require awardees to disclose any family or student / postdoc / professor relationships or potential conflicts of interests between company personnel and subcontractor personnel prior to each award.

NSF's response to these recommendations is pending.

Security Issues at NSF Raise Concerns

As a result of several investigations, we initiated a review of contractor employee background investigations, as well as a broader assessment of NSF's system for ensuring physical security for NSF's staff and infrastructure.

Our assessment of NSF's physical security policies and procedures identified numerous vulnerabilities. NSF management responsible for security were aware of these issues, were receptive to addressing the vulnerabilities we pointed out, and are taking affirmative steps to address them. Therefore, we are working with NSF management, monitoring and assessing the steps they are taking to address these sensitive issues.

NSF contracts with private companies to provide a variety of services. Each NSF contractor employee who requires routine physical access to NSF or to NSF computer systems for more than six months is required to have a background investigation. Following an investigation in which we learned that a contractor employee had not undergone a required background investigation for eight months, we reviewed NSF's current policies and practices regarding the entrance process for contractor employees to determine if contractor employees are complying with these policies and practices. We found that NSF did not have a central office or database to maintain such information about these contractor employees, and therefore, we could not assess the extent to which contractor employees comply with the background investigation requirement. As a result, NSF does not have a mechanism to determine which contractor employees are at NSF, or whether those employees have undergone required background investigations.

The issues we identified raise significant security concerns with respect to compliance with requirements of the contractor employee entrance process. Accordingly, we recommended that NSF:

• Take appropriate action to ensure that: all contractor employees who require a background investigation are identified; that the background investigations are conducted as soon as is practicable (preferably before they begin work at NSF); and that appropriate action is taken in a timely manner when the background investigation raises issues; and

• Confirm that its processes for ensuring that NSF employees obtain background investigations in a timely manner, and ensuring that employees and contractor employees who require security clearances obtain them in a timely manner and maintain them, are functioning well.

NSF's response to these recommendations is pending.

Human Subjects Research Concerns at Two Universities

In partnership with NSF, OIG is investigating the use of NSF award funds by two universities and their procedures for approving and monitoring human subjects research resulting in combined total of $300,000 in funds put to better use. In the first instance, a professor at a California university submitted a

progress report to NSF that described research activities outside of the scope of the NSF award. The PI had not sought NSF's prior approval for the change in scope. NSF suspended the award and subsequently determined that the PI had further changed the scope of the project by terminating a collaborative subaward, again without the requisite NSF preapproval.

In the second instance, NSF suspended a Texas university professor PI's awards when the university notified NSF that it had suspended the PI's research. Although the university subsequently lifted the suspension, after the NSF program and OIG requested details about the university's decision making, the university re-suspended the PI's work and conducted a second, extensive review. It ultimately reinstated the work, allowing the PI to use the collected data. NSF has not lifted its suspension and as a consequence did not fund the next grant increment. Both NSF and OIG have ongoing concerns about the adequacy of the university's monitoring and oversight of sensitive research involving human subjects and its management of award funds.

NSF recently alerted program officers about a university that merely conceptually approved the human subjects research in a proposal. NSF has directed program officers to scrutinize proposals carefully to ensure that PIs obtain the appropriate IRB approval for conducting research involving human subjects.

Follow-Up from Previous MIRs

NSF Takes Steps to Reduce Costs of Refreshment Purchases for Meetings

We reviewed NSF's expenditure of nearly $500,000 a year to provide refreshments for merit review panelists and others attending meetings at NSF.[12] We concluded that NSF would benefit from more centralized purchasing, and recommended that, if NSF chooses to continue providing such refreshments, it should centralize its procurement to improve control over the process and ensure it is carried out reasonably, consistently, and responsibly. NSF decided that, because it is "crucial that panels operate in an environment that maximizes thoughtful and efficient deliberation," it will continue to provide refreshments comprising an array of pastries, fruit, and hot and cold beverages. NSF committed to taking specific steps to control and reduce costs, and has taken the following actions:

- NSF instituted a $25 daily limit per panelist on light refreshments, and urged responsible NSF staff to look for opportunities to spend below the $25 maximum per panelist. NSF estimated that this will save approximately $50,000 annually, reducing the cost of refreshments from approximately $500,000 per year to $450,000. We will review cost data provided by NSF to assess the efficacy of this limit.

- NSF issued a staff bulletin to reinforce best practices regarding the purchase of light refreshments, which defined "light refreshments" and gave specific examples of appropriate and inappropriate purchases.

NSF has begun exploring the costs and benefits associated with further centralization of purchasing light refreshments, and the establishment of a fully centralized purchasing process if the benefits are determined to outweigh the costs. This process is continuing and is scheduled to be completed by March 1, 2012. We have urged NSF to aggressively assess the risks and internal controls associated with the various options it is considering, and to also ensure that those employees that are currently purchasing refreshments are seeking the most cost effective deals.

NSF Concludes Actions to Address Recommendations in Response to Review of Oversight Plans for Projects Involving International Subawardees

We reviewed Oversight Plans for institutions collaborating with international subawardees in an NSF program.[13] The lead institutions were required to submit and implement Oversight Plans to ensure subawardee compliance with a variety of requirements. Our review determined that the Plans generally did not substantively address all of the requirements, and recommended improvements. NSF agreed and stated that it would: modify language in the next solicitation to ensure collaborative Plans that fully address the program's requirements; and encourage current grantees to develop Plans that explain how they will address RCR training and research misconduct enforcement.[14]

NSF modified its solicitation for the next round of proposals for the program to clearly require Oversight Plans that address all of the program's requirements. NSF also wrote to the current grantees and asked them to provide a summary of the current Oversight Plan that includes a description of how the grantees would address RCR training and research misconduct enforcement—however, most of the awardees did not substantively improve their Plans in this regard. NSF does not intend to take any further action to improve these awardees' Plans; accordingly, we will conduct another review of this program to assess awardees' compliance with all of the program's requirements.

Audits & Reviews

Eleven audit reports and reviews were issued during this reporting period. Auditors found that an awardee's proposed budget for a major construction project included $76 million of unallowable contingency costs, bringing unallowable contingency costs in proposals for three major construction projects to $226 million. In addition, an audit questioned more than $120,000 of award costs that were claimed before they were paid. We recommend that NSF, in consultation with the OIG, resolve the recommendations.

We also recommended that NSF develop a procedure to ensure that conflicts of interest at its grantee institutions are managed, reduced, or eliminated.

NSF's Current Policy Does Not Provide Assurance of Adequate Oversight of Financial Conflicts of Interest

NSF's Conflicts of Interest Policy states that a conflict of interest exists when a financial interest could significantly affect NSF-funded research. It is vital that such conflicts are properly overseen and managed, as poorly managed or hidden conflicts can create the perception of misconduct or that public resources could be misused for private benefit.

Concerned about NSF's oversight of grantee financial conflicts of interest, the then-Ranking Member of the Senate Committee on Finance requested that we conduct an audit of financial conflict of interest at institutions that received NSF grants. We found that grantee institutions had not reported any unmanageable conflicts to NSF during the three-year scope of our audit between April 1, 2007 and March 31, 2010. Under NSF's policy, institutions are only required to report conflicts that they cannot satisfactorily manage. In addition, the requirement for institutions to report an unmanageable conflict is only a reporting standard and does not demand action on NSF's part.

Based on the lack of unmanageable conflicts reported to NSF, we expanded our audit to examine the conflict of interest policies and procedures at nine institutions to determine whether their programs complied with NSF's policy. We identified 17 policy and procedural standards in NSF's policy and found all nine conflicts programs were properly implementing 11 of the required elements. While we determined that some of the six omitted elements were technical in nature, others such as a lack of arrangements to keep NSF's Office of General Counsel informed of unmanageable conflicts, and a lack of adequate enforcement mechanisms and sanctions raised concerns about the adequacy of the institutions' policies to enforce NSF's standards and to ensure that conflicts were properly managed.

Our audit also identified aspects of NSF's existing policy and its oversight of conflicts that raised concerns. Based on its current policy, NSF has limited information on institutions' implementation of their conflicts program or the methods used to manage reported conflicts. Specifically, NSF is not required to review or follow-up with the institutions on reported unmanageable conflicts. In addition, NSF is not required to provide monitoring and oversight of the institution's implementation of their conflicts programs. Finally, institutions are not required to notify NSF when an institution permits research to continue without imposing conditions or restrictions on an identified conflict.

Because its conflicts of interest policy does not require it to oversee or manage grantee institutions' conflicts programs, NSF lacks assurance that the institutions are properly managing, reducing, or eliminating conflicts or that unmanageable conflicts are being reported.

We recommended that NSF develop a procedure to ensure that conflicts at its grantee institutions are managed, reduced, or eliminated. NSF stated that it will develop an appropriate plan to ensure sufficient oversight of unmanageable conflicts and that it is informed of instances where institutions may allow research to continue without the imposition of conditions or restrictions.

Better Documentation Would Enhance Accountability and Transparency of NSF's Priority Goal Progress

In June 2009, the Office of Management and Budget (OMB) requested that agencies identify and commit to a limited number of priority goals with high value to the public. The purpose of the initiative was to improve the performance and management of federal government agencies. Documenting the results achieved compared to the goals established was intended to improve performance accountability and transparency.

NSF's priority goal is to improve the education and training of an innovative science, technology, engineering, and mathematics (STEM) workforce. It committed NSF to having evaluation and assessment systems in place for at least six major STEM workforce development programs at the graduate or postdoctoral level by the end of FY 2011.

Our audit found that NSF has taken steps through the priority goal process to develop a framework for evaluating and assessing its STEM programs. However, the detail and documentation NSF provided to support accomplishment of milestones to meet its goal was inadequate and did not provide the intended transparency and accountability. Specifically, NSF reported that it had completed 14 milestones for achieving its priority goal, but based on the support provided we could only verify that two were completed as claimed. To attain the transparency and accountability the priority goal process was intended to have, it is essential for NSF to maintain verifiable support for the progress it reports toward its goal.

We recommended that NSF ensure that it develops and maintains competent, contemporaneous evidence to support the attainment of each milestone and goal it reports and enable independent verification of claimed results; and that it periodically review the support for the priority goal results, so any gaps in evidence for claimed results will be identified and addressed in a timely fashion.

NSF concurred with the recommendation.

$76 Million in Unallowable Contingency Costs in Unauditable Construction Proposal for National Ecological Observatory Network

Auditors found significant deficiencies in the $433.7 million cost proposal for construction of the National Ecological Observatory Network (NEON) that render the proposal unacceptable for audit. As a result, NSF does not have assurance that the construction proposal is an acceptable basis for funding. The proposal cannot be audited because the amounts proposed for itemized cost categories such as labor, overhead, equipment, and other items in the proposal do not agree with the amount of the supporting documentation provided for each category. Several other significant deficiencies were also found in the proposal. Further, the proposal includes approximately $76 million in unallowable contingency costs.

It was recommended that NSF request NEON to resubmit an adequate construction proposal with the unallowable contingencies removed, have the proposal audited, and base NSF funding on the results of the audit. NEON indicated that it would work collaboratively with the auditors to provide further explanation of its cost proposal methodologies and to provide the information sought by the auditors.

"The auditors' findings of unauditable proposals and unallowable contingencies in this award are in addition to those discussed in our September 2010 and March 2011 semiannual reports. In September 2010, we reported that a non-profit organization, Consortium for Ocean Leadership, proposed $88 million of unallowable contingency costs in a $386 million budget. In March 2011, we reported $62 million in unallowable contingencies in a $298 million unauditable cost proposal to construct the Advanced Technology Solar Telescope. The OIG, DCAA auditors, and NSF management are working together to address unverifiable proposed costs and the inclusion of unallowable contingencies in NSF awardees' large construction proposals.

More than $120,000 in Questioned Costs on NSF Award

An audit of the Field Museum of Natural History questioned $123,663 for claimed costs that had not yet been paid. The NSF funds supporting the NSF grant had expired before the Field Museum paid for the claimed costs. The Museum claimed these costs in advance to prevent losing access to these expiring funds.

In addition, approximately $94,000 in subaward costs, equipment, and other costs were misclassified in the Museum's accounting system. A misclassification of this nature is particularly significant because, as of September 2010, the

Museum had 39 active awards totaling $13.4 million. Without proper monitoring of actual to budgeted costs, there is an increased risk that funds may not be spent as intended and that indirect cost charges may not be correct.

Recommendations included that the Field Museum return the $123,663 in claimed costs and that it implement procedures to prevent future claims for such costs. The Field Museum disagreed with the questioned costs and the recommendations.

Improvements Needed in AUI's Accounting System

Associated Universities, Inc. (AUI) is the management organization for the NSF's National Radio Astronomy Observatory, including the Atacama Large Millimeter Array which is under construction. An audit found that AUI's accounting system is generally adequate for accumulating and billing costs under government awards. However, several deficiencies were identified in procedures used to calculate and allocate indirect costs to NSF awards. These weaknesses could result in indirect costs being inequitably allocated or overcharged to NSF. Improvements are also needed to ensure the accuracy of the costs reported to NSF for reimbursement. The audit also included a review of AUI's executive compensation, which was found to be reasonable.

The audit made several recommendations including that AUI revise its indirect cost procedures and correct any errors in claimed costs submitted to NSF. AUI agreed with the audit's recommendations and stated that it will implement corrective action to address the deficiencies identified.

University of Alaska-Anchorage Needs to Improve Grants Management

Our review of federal grant management processes at the University of Alaska – Anchorage found that the University needs to improve management of its $1.3 million award to broaden participation of underrepresented groups in STEM; revise its labor effort reporting process to ensure reliable confirmation of all salary charges to NSF grants; and improve the property management system to safeguard equipment purchased with NSF funds.

We found that the University inappropriately spent more than $533,000 of the $1.3 million of its broadening participation award funds for purposes that did not benefit the grant, and we questioned $78,093 of unallowable entertainment, food, and other costs charged to this award. In addition, labor effort reports supporting salary charges to NSF grants were improperly certified by individuals who did not have first-hand knowledge of the employee's work activities. This control weakness raises concerns about the reasonableness of the $4 million of labor costs budgeted on all of the University's NSF grants. This is particularly important as $1.3 million of the total $4 million of budgeted NSF grant salaries were for ARRA funded awards. Lastly, UAA did not maintain timely updates to its property records.

The University stated that it is taking steps to improve its grants management processes.

AUDIT RESOLUTION

Recipients of Recovery Act Funds Strengthen Controls over Quarterly Reporting and Grants Management

The American Recovery and Reinvestment Act (ARRA) requires recipients to submit quarterly reports that include data related to projects funded and the impact of these projects on job creation. It is essential for this data to be accurate in order to meet Recovery Act accountability and transparency goals. Six institutions — University of Alaska-Anchorage, New Jersey Institute of Technology, University of Washington, American Museum of Natural History, California Academy of Sciences, and Institute of Global Environment and Society--strengthened controls over their quarterly reporting in response to our audits. In addition, NSF expanded outreach and technical guidance to ensure that Recovery Act fund recipients understand the Act's reporting requirements.

In addition, two of the institutions strengthened controls over their grants management processes, and two institutions developed new policies to prevent debarred or suspended vendors from obtaining federal awards.

University of Nevada-Reno Agrees to Implement Changes to its Effort Reporting System

In response to our January 2010 audit, the University of Nevada-Reno has taken several steps to strengthen its effort reporting system, including committing to conduct periodic evaluations of its effort reporting processes and developing a grants management training program. NSF also sustained $14,019 in questioned costs.

Carnegie Institution of Washington Agrees to Improve Its Financial Management Processes

In response to our July 2009 audit, Carnegie Institution of Washington has agreed to take several steps to improve its financial management processes including increasing grant monitoring activities, strengthening controls over journal entry procedures to ensure that cost transfers to NSF awards were appropriate, and revising procedures to properly segregate duties related to its disbursement process. NSF also sustained $23,218 in questioned costs.

A-133 Audits

Single Audit Findings Go Uncorrected at 31 Awardees

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 170 audit reports[12] reviewed and referred to NSF's Cost Analysis and Audit Resolution (CAAR) Branch this period covered NSF expenditures of $7.3 billion during audit years 2007 through 2011, and resulted in 209 findings at 86 NSF awardees. Seven awardees received qualified opinions on their financial statements and 16 awardees received qualified or adverse opinions on their compliance with federal grant requirements, including 7 awardees who received qualified opinions on compliance for programs which included NSF ARRA expenditures. The auditors reported 67 repeat findings, including 18 repeat material weaknesses and 26 repeat significant deficiencies in internal control over compliance with federal requirements. The failure of these 31 awardees (36 percent of awardees with findings) to implement corrective actions could call into question their ability to manage NSF funds. Twenty-one findings identified by the auditors resulted in $1.3 million in questioned costs to NSF awards, of which $1.2 million were 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 54 management letters accompanying the A-133 audit reports and found 18 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, and ineffective segregation of duties. 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 35 Percent 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 74 audit reports[13] for which NSF was the cognizant or oversight agency for audit, and found that 48 fully met federal reporting requirements.

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12 March 2011 Semiannual Report, p.26.
13 March 2011 Semiannual Report, pp.28-29.

Twenty-six reports (35 percent), including 3 reports with ARRA expenditures, contained audit quality and timeliness issues. The quality issues we identified included 11 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. Of the 18 reports which included audit findings, 8 reports (44 percent) failed to adequately present the required elements of the finding to assist auditee management in correcting the reported deficiency, and 8 reports failed to adequately present the required elements of management's plan to correct the deficiencies reported. In addition, 5 reports were submitted after the due date required by OMB Circular A-133. Finally, 4 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 two reports due to substantial non-compliance with federal reporting requirements, and instructed the auditors to revise and resubmit a 3rd report which contained technical deficiencies. 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.

Two OIG Quality Control Reviews Find Significant Audit Deficiencies In Single Audits by Public Accounting Firms

Quality Control Reviews consist of on-site reviews of auditor documentation in support of Single Audits. The 2007 report issued by the President's Council on Integrity and Efficiency, which we reported previously[14], demonstrated that quality control reviews are an important tool for determining whether Single Audits met government auditing and reporting requirements, and for helping to improve future audit quality.

During this period, we issued reports of our quality control reviews of two Single Audits of NSF awardees.   In both cases we found significant audit quality deficiencies in the audits and instructed the auditors to conduct additional work. Further, due to the serious nature of the deficiencies we referred both audit firms to the Professional Ethics Division of the American Institute of Certified Public Accountants.

The audit quality deficiencies in the single audit performed at Virginia Military Institute Research Laboratories (VMIRL) resulted in failure to identify a material noncompliance with Recovery Act reporting requirements. VMIRL expended nearly $335,000 on an NSF ARRA award. In the single audit at Drilling,

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14 September 2010 Semiannual Report, p.14.

Observation and Sampling of the Earth's Continental Crust (DOSECC), audit quality deficiencies resulted in the failure to identify a misstatement material to the Schedule of Expenditures of Federal Awards. DOSECC had expenditures of more than $560,000 in NSF direct funding.

Our follow-up review of the VMIRL audit found that it met applicable Federal requirements. The auditors are currently conducting additional testing at DOSECC; we plan to conduct a follow-up review during the next semiannual period.

OIG Management Activities

OUTREACH

Outreach is a productive tool in accomplishing our mission to prevent and detect fraud, waste, and abuse and to promote economy, efficiency, and effectiveness in NSF programs and operations. We undertake numerous proactive activities, including educating NSF awardees about fraud recognition and prevention, research misconduct and responsible conduct of research, and their financial and programmatic responsibilities.

Continuing to respond to Congressional concerns regarding the prevention and detection of fraud in Small Business Innovation Research / Small Business Technology Transfer (SBIR/STTR) Programs, the Inspector General is leading the SBIR working group, under the auspices of the Council of Inspectors General on Integrity and Efficiency (CIGIE) Research Misconduct Working Group. In June, the Working Group conducted a government-wide workshop focused on initiatives to help ensure integrity, improve oversight, and enhance fraud prevention in these programs. The workshop was attended by over 130 individuals from 25 federal agencies, congressional staff, and representatives from the Recovery Accountability and Transparency Board (RATB).

In addition, the Inspector General leads a Suspension and Debarment (S&D) Working Group with the Federal Housing Finance Agency IG, under the auspices of the CIGIE Investigations Committee. This group, which consists of representatives from the RATB and thirteen OIGs, is focused on increasing knowledge and use of S&D to protect government funds against fraud. In the past six months, the group reported the results of two surveys, one of the IG community and one of agency S&D officials, and is exploring options about ways to enhance the use of S&D in Recovery Act awards and other awards impacted by significant wrongdoing.

The Inspector General addressed several organizations on issues such as science and public policy, research misconduct, and the role of inspectors general. Presentations at the International Workshop on Accountability in Science and Research focused on identifying and managing fraud risk from the perspective of a research funding and using technology to prevent and detect fraud.

The Assistant Inspector General for Investigations (AIGI) and the Assistant Inspector General for Audit (AIGA) also participated in outreach efforts such as presentations on the more effective use of S&D to combat fraud against the government, training for audit peer review standards, efforts to establish peer review for investigations among the Designated Federal Entity Offices of Inspector General, grant oversight, and research misconduct.

The AIGI shared her experience and insights with the Association of Directors of Investigations on how S&D can be more effectively employed to combat fraud against the federal government. She also provided a lecture on research integrity to the Research Ethics Symposium.   The AIGA is leading the RATB's working group on grant fraud indicators and chairs the Federal Audit Executive Council under the auspices of CIGIE, which sponsored a conference attended by more than 160 auditors and others from 56 federal agencies.

Our extensive experience in investigating grant fraud and research misconduct matters is well recognized in the community, and we continue to receive numerous requests from universities and others in the research community to provide assistance and training on the prevention, detection, and investigation of research misconduct. Among other things, we conducted research miscon-duct briefings at six universities, participated in a curriculum review for fraud courses provided at the Federal Law Enforcement Training Center (FLETC), and provided instructors to FLETC for grant fraud related courses. These activities demonstrate our commitment to maintain a robust outreach program to the greatest degree possible under current fiscal restraints.

As reported in our March 2011 semiannual, NSF OIG investigation closeout memo-randa, describing the nature of our investigations and whether they resulted in administrative, civil, or criminal action, are publicly available on our website at: *www.nsf.gov/oig/closeouts.jsp*. The memoranda are organized into searchable cate-gories such as grant fraud, contractor fraud, computer intrusion, and PI misconduct. We have recorded over 15,000 hits, about 2500 hits per month, since this online access was made available. The public release of the closeout memoranda makes our work more transparent, and reduces our need to respond to requests under the Freedom of Information Act for these documents.

Statistical Data

Audit Data

Audit Reports Issued with Recommendations for Better Use of Funds

			Dollar Value
A.		For which no management decision has been made by the commencement of the reporting period	$150,523,383
B.		Recommendations that were issued during the reporting period	$75,780,354
C.		Adjustments related to prior recommendations	$0
Subtotal of A+B+C			$226,303,737
D.		For which a management decision was made during the reporting period	$65,632
	i)	Dollar value of management decisions that were consistent with OIG recommendations	$0
	ii)	Dollar value of recommendations that were not agreed to by management	$65,632
E.		For which no management decision had been made by the end of the reporting period	$226,238,105
For which no management decision was made within 6 months of issuance			$150,457,751

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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*	39	$45,789,446	$5,996,712
B.	That were issued during the reporting period	22	$1,546,659	$1,327,436
C.	Adjustment related to prior recommendations	2	-$56,895**	-$53,882**
Subtotal of A+B+C			$47,279,210	$7,270,266
D.	For which a management decision was made during the reporting period	24	$17,031,706***	$1,241,171
	dollar value of disallowed costs dollar value of costs not disallowed	N/A N/A	$11,003,474 $6,028,232	N/A N/A
E.	For which no management decision had been made by the end of the reporting period	37	$30,247,504	$6,029,095
For which no management decision was made within 6 months of issuance		17	$28,704,598	$4,701,659

*The 39 reports include four that were on hold at the request of OIG. These reports are:

Report No.	Questioned Costs	Unsupported Costs
09-5-048	$110,629	$0
10-4-012	$791	$776
10-4-100	$1,881	$0
11-5-102	$40,000	$40,000

**There are prior period adjustments on two A-133 audit reports: Report No. 09-5-052 is reduced by $17,415 for both questioned costs and unsupported costs; Report No. 10-5-016 is reduced by $39,480 for questioned costs and $36,467 for unsupported costs.

***This total includes the amount that is included in the Investigative Tables on page 41 and described in the Investigative case write-ups on page 7.

Status of Recommendations that Involve Internal NSF Management Operations

Open Recommendations (as of 03/31/11)	
Recommendations Open at the Beginning of the Reporting Period	50
New Recommendations Made During Reporting Period	4
Total Recommendations to be Addressed	54
Management Resolution of Recommendations[1]	
Awaiting Resolution	12
Resolved Consistent With OIG Recommendations	42
Management Decision That No Action is Required	0
Final Action on OIG Recommendations[2]	
Final Action Completed	2
Recommendations Open at End of Period	**52**

Aging of Open Recommendations

Awaiting Management Resolution:	
0 through 6 months	4
7 through 12 months	8
More than 12 months	0
Awaiting Final Action After Resolution	
0 through 6 months	0
7 through 12 months	15
More than 12 months	25

1 "Management Resolution" occurs when the OIG and NSF management agree on the corrective action plan that will be implemented in response to the audit recommendations.
2 "Final Action" occurs when management has completed all actions it agreed to in the corrective action plan.

List of Reports

NSF and CPA-Performed Reviews

Report Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds
11-1-017	ARRA Capability UAA – University of Alaska	$78,093	$0	$0
11-1-018	EDJ Associates	$0	$0	$0
11-1-020	Cold Spring Harbor Laboratory	$0	$0	$0
11-1-021	NEON National Ecological Observatory Network	$0	$0	$75,780,354
11-1-023	Field Museum of Natural History – IL	$123,663	$123,663	$0
11-1-024	AUI Review of Accounting System	$0	$0	$0
11-2-008	NSF's Priority Performance Goal Process	$0	$0	$0
11-2-009	COI Senator Grassley Request Conflict of Interest	$0	$0	$0
11-6-001	QCR of 12-07 DOSECC Drilling Observation & Sampling of Earth's Continental Crust	$0	$0	$0
11-6-003	ARRA QCR of Raetz & Hawkin's 2010 A-133 Audit of VMI Research Laboratories	$0	$0	$0
11-6-006	ASC Antarctic Support Contract	$0	$0	$0
	Total:	**$201,756**	**$123,663**	**$75,780,354**

The Office issued 11 reports this semiannual period.

NSF-Cognizant Reports

Report Number	Subject	Questioned Costs	Unsupported Costs
11-4-069	9-10 Fermi Research Alliance LLC	$0	$0
11-4-070	12-09 Institute of Learning Innovation – MD	$12,624	$0
11-4-071	9-10 Museum of Science and Industry, Inc.	$0	$0
11-4-072	9-10 REJECTED Museum of Science, Inc. d/b/a Miami Science Museum – FL	$0	$0
11-4-074	NEES Consortium, Inc. – CA	$0	$0
11-4-075	9-10 Northern California Public Broadcasting – CA	$0	$0
11-4-077	6-10 QEMN Quality Education for Minorities – DC	$0	$0
11-4-080	6-10 Computing Research Association, Inc. – DC	$0	$0
11-4-082	9-10 Virtual Astronomical Observatory LLC – DC	$0	$0
11-4-083	12-07 World Technology Evaluation Center, Inc. – PA	$244,982	$155,765
11-4-084	6-10 Michigan State University	$0	$0
11-4-086	6-10 Institute for Advanced Study – NJ	$0	$0
11-4-087	8-10 Association of American Geographers – DC	$0	$0
11-4-088	6-10 CORD, Inc. – TX	$0	$0
11-4-089	12-10 REJECTED EERI Earthquake Engineering Research Institute – CA	$0	$0
11-4-090	9-10 New England Wild Flower Society, Inc. – MA	$0	$0
11-4-091	9-10 The Algebra Project – MA	$0	$0
11-4-092	12-10 American Physical Society – MD	$0	$0
11-4-093	6-10 Museum of Science – MA	$0	$0
11-4-094	8-10 San Jose Children's Discovery Museum – CA	$0	$0
11-4-095	12-10 SCOR Scientific Committee on Ocean Research – DE	$0	$0
11-4-096	6-10 Ecological Society of America – DC	$0	$0
11-4-097	6-10 New York Botanical Garden – NY	$0	$0
11-4-098	6-10 Island Institute – ME	$0	$0
11-4-099	9-10 LSST, Inc. – AZ	$0	$0
11-4-100	9-10 Concord Consortium, Inc. – MA	$0	$0
11-4-101	12-10 American Statistical Association – VA	$0	$0
11-4-102	12-10 Hopa Mountain Foundation – MT	$0	$0
11-4-103	12-10 Missouri Botanical Garden – MO	$0	$0
11-4-104	6-10 WNET.ORG / Educational Broadcasting Corporation – NY	$0	$0
11-4-105	9-10 California Institute of Technology – CA	$0	$0
11-4-106	9-10 REVISED Museum of Science, Inc. d/b/a Miami Science Museum – FL	$0	$0
11-4-107	12-10 Seattle Aquarium Society – WA	$0	$0

11-4-108	12-10 REVISED EERI Earthquake Engineering Research Institute – CA	$0	$0
11-4-109	6-10 MPC Corporation – PA	$0	$0
11-4-110	12-10 Association for Institutional Research, Inc. – FL	$0	$0
11-4-111	9-10 Chabot Space & Science Center – CA	$0	$0
11-4-112	6-10 Soundvision Productions – CA	$0	$0
11-4-113	12-10 Samuel Roberts Noble Foundation – OK	$0	$0
11-4-114	12-10 Santa Fe Institute – NM	$0	$0
11-4-115	9-10 COL Consortium for Ocean Leadership	$0	$0
11-4-116	6-10 New York Hall of Science – NY	$0	$0
11-4-117	12-10 American Geophysical Union – DC	$0	$0
11-4-118	12-10 ICSI International Computer Science Institute – CA	$0	$0
11-4-119	12-10 AAAS American Association for the Advancement of Science – DC	$0	$0
11-4-120	12-10 American Sociological Association – DC	$0	$0
11-4-121	12-10 Marine Biological Laboratory – MA	$0	$0
11-4-122	12-10 Mobile Area Education Foundation, Inc. – AL	$0	$0
11-4-123	12-10 TERC Technical Education Research Centers, Inc. – MA	$0	$0
11-4-124	12-10 BIOS Bermuda Institute of Ocean Sciences, Inc. – NY	$0	$0
11-4-125	12-10 Field Museum of Natural History – IL	$0	$0
11-4-126	9-10 Northwest Association for Biomedical Research – WA	$0	$0
11-4-127	9-10 TMT Observatory Corporation – CA	$0	$0
11-4-128	9-10 AURA Association of Universities for Research in Astronomy, Inc. – DC	$0	$0
11-4-129	12-10 Association of Public and Land-Grant Universities – DC	$0	$0
11-4-130	12-10 American Mathematical Society – RI	$0	$0
11-4-131	12-10 Horizon Research, Inc. – NC	$0	$0
11-4-132	12-10 Academy of Natural Sciences of Philadelphia – PA	$0	$0
11-4-133	12-10 The Franklin Institute – PA	$0	$0
11-4-134	6-10 REVISED VMI Research Laboratories – VA	$0	$0
11-4-135	9-10 IMI IODP Management International – DC	$0	$0
11-4-136	12-10 Industrial Research Institute, Inc. – VA	$654,171	$654,171
11-4-137	12-10 American Educational Research Association – DC	$0	$0
11-4-138	12-10 Denver Museum of Nature and Science – CO	$0	$0
11-4-139	12-10 Institute for Broadening Participation – ME	$0	$0
11-4-140	12-10 Botanical Research Institute of Texas, Inc.	$0	$0

11-4-141	3-11 Association of Science-Technology Centers – DC	$0	$0
11-4-142	12-10 Center for Severe Weather Research – CO	$0	$0
11-4-143	12-10 Consortium of Universities for Research in Earthquake Engineering – CA	$0	$0
11-4-144	7-10 Mathematical Sciences Research Institute – CA	$0	$0
11-4-145	12-10 Mathematical Association of America – DC	$0	$0
11-4-146	12-10 UNAVCO, Inc. – CO	$0	$0
11-4-147	12-10 Institute for Learning Innovation – MD	$0	$0
	Total:	**$911,777**	**$809,936**

Other Federal Reports

Report Number	Subject	Questioned Costs	Unsupported Costs
11-5-106	6-10 Bentley University – MA	$119,873	$119,873
11-5-111	6-10 Polytechnic Institute of New York University – NY	$3,683	$0
11-5-118	6-10 Jarvis Christian College – TX	$3,851	$3,851
11-5-131	6-10 Bates College – ME	$70	$0
11-5-144	6-10 Hampshire College – MA	$89,567	$89,567
11-5-145	6-10 Miles College – AL	$30,059	$0
11-5-154	6-10 University of Illinois	$57,350	$57,350
11-5-157	6-10 Saint Louis University – MO	$2,573	$0
11-5-160	6-10 Fisk University – TN	$2,042	$0
11-5-161	6-10 University of Maine System	$29,868	$29,868
11-5-164	9-09 Fort Berthold Community College – ND	$9,918	$9,386
11-5-167	8-10 Stanford University – CA	$45	$45
11-5-171	9-10 Stone Child College – MT	$12,400	$12,400
11-5-174	9-10 Smithsonian Institution – DC	$330	$0
11-5-179	6-10 College of the Menominee Nation – WI	$12,034	$12,034
11-5-182	5-10 Navajo Technical College – NM	$58,279	$58,279
11-5-185	5-11 Skidmore College – NY	$1,184	$1,184
	Total:	**$433,126**	**$393,837**

Audit Reports With Outstanding Management Decisions

This section identifies audit reports involving questioned costs, unsupported costs, and funds put to better use, where management had not made a final decision on the corrective action necessary for report resolution with six months of the report's issue date. At the end of the reporting period there were 19 reports remaining that met this condition. The status of recommendations that involve internal NSF management is described on page 35.

Report Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds
05-1-005	RPSC Costs Claimed FY2000 to 2002	$12,334,824	$0	$0
06-1-023	RPSC 2003/2004 Raytheon Polar Services	$6,860,500	$0	$0
07-1-003	Triumph Tech, Inc.	$80,740	$1,192	$0
07-1-019	ABt Associates	$22,716	$0	$0
09-1-011	Wisconsin Ice Core Drilling Services	$2,475,308	$27,308	$0
09-1-014	University of Michigan	$1,604,713	$1,418,889	$0
09-5-048	8-07 College of the Mainland – TX *	$110,629	$0	$0
10-1-001	SUNY at Stony Brook Effort Reporting	$23,656	$0	$0
10-1-008	University of Delaware Effort Reporting	$34,299	$0	$0
10-1-012	COL OOI Proposed Budget	$0	$0	$88,184,480
10-1-014	JOI 20 Month Incurred Cost	$392,309	$324,500	$0
10-1-015	COL 4 Month Incurred Cost	$195,937	$80,000	$0
10-5-132	6-09 Howard University – DC	$144,209	$136,273	$0
11-1-001	REVISED ATST Price Proposal	$0	$0	$62,338,903
11-1-009	Ohio State University Research Foundation	$1,736,068	$490,129	$0
11-1-012	Trustees of Boston University	$412,400	$47,486	$0
11-1-011	NCCU Internal Control Review	$351,340	$268,628	$0
11-1-013	Louisiana Board of Regents	$1,884,950	$1,867,254	$0
11-5-102	8-10 State of Texas *	$40,000	$40,000	$0
	Total:	$28,704,598	$4,701,659	$150,457,751

*This report was on hold at the request of OIG.

INVESTIGATIONS DATA
(April 1, 2011 – September 30, 2011)

Civil/Criminal Investigative Activities

Referrals to Prosecutors	5
Criminal Convictions/Pleas	6
Arrests	3
Civil Settlements	2
Indictments/Information	1
Investigative Recoveries	$2,088,854.56
Investigative Recoveries[1]	$10,814,595.00

Administrative Investigative Activities

Referrals to NSF Management for Action	25
Research Misconduct Findings	7
Debarments	6
Administrative Actions	46
Certifications and Assurances Received[2]	32

Investigative Case Statistics

	Preliminary	Civil/Criminal	Administrative
Active at Beginning of Period	46	83	82
Opened	98	26	43
Closed	83	18	32
Active at End of Period	61	91	93

Freedom of Information Act and Privacy Act Requests

Our office responds to requests for information contained in our files under the freedom of Information Act ("FOIA," 5 U.S.C. § 552) and the Privacy Act (5 U.S.C. § 552a). During this reporting period:

- Requests Received   53
- Requests Processed   56
- Appeals Received   1
- Appeals Upheld   1

Response time ranged between 3 days and 20 days, with the median around 15 days and the average around 14 days.

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1 See write-up on page 7.
2 NSF accompanies some actions with a certification and/or assurance requirement. For example, for a specified period, the subject may be required to confidentially submit to OIG a personal certification and/or institutional assurance that any newly submitted NSF proposal does not contain anything that violates NSF regulations.

Appendix

Acronyms

AD	NSF Assistant Director
AIG	Associate Inspector General
ARRA	American Recovery and Reinvestment
CAREER	Faculty Early Career Development Program
CAS	Cost Accounting Standards
CBA	Collective Bargaining Agreement
CIGIE	Council of Inspectors General on Integrity and Efficiency
CISE	Computer and Information Science and Engineering Directorate
COI	Conflict of Interest
COV	Committee of Visitors
DACS	Division of Acquisition and Cost Support
DCAA	Defense Contract Audit Agency
DD	Deputy Director
DGA	Division of Grants and Agreements
DIAS	Division of Institution and Award Support
DoD	Department of Defense
DoE	Department of Energy
DoJ	Department of Justice
ECIE	Executive Council of Integrity and Efficiency
EPSCoR	Experimental Program to Stimulate Competitive Research
FFRDC	Federally Funded Research and Development Centers
FISMA	Federal Information Security Management Act
GAO	Government Accountability Office
GAS	Government Auditing Standards
GPRA	Government Performance and Results Act
HHS	Department of Health and Human Services
IG	Inspector General
MIRWG	Misconduct in Research Working Group
MREFC	Major Research Equipment and Facilities Construction
NIH	National Institute of Health
NSB	National Science Board
NSF	National Science Foundation
OEOP	Office of Equal Opportunity Programs
OIG	Office of Inspector General
OMB	Office of Management and Budget
OPP	Office of Polar Programs
OPM	Office of Personnel Management
PCIE	President's Council on Integrity and Efficiency
PI	Principal Investigator
PFCRA	Program Fraud Civil Remedies Act
RCR	Responsible Conduct of Research
SBIR	Small Business Innovation Research
STC	Science and Technology Centers
USAP	United States Antarctic Program

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CHALLENGE: Ensuring Proper Stewardship of ARRA Funds

Overview: The American Recovery and Reinvestment Act (ARRA) provided $3 billion for the National Science Foundation (NSF) as an investment in research that would produce economic benefits and growth over time. NSF staff worked diligently to obligate over 4000 awards during 2009, and the last of the ARRA funds were obligated by September 2010. NSF awardees have registered a 99.8 percent compliance rate with ARRA reporting requirements.

As of the end of FY 2011, just $1.38 billion of NSF's ARRA funds have been expended, the lowest spending rate (or "burn rate") among federal agencies. On September 15, 2011 OMB issued a memorandum to the heads of federal agencies urging them to spend remaining Recovery funds, and to recapture discretionary grant funds not spent by the end of FY 2013 "to the fullest extent of the law". There are 638 NSF ARRA awards that will not expire until after FY2013.

Challenge for the Agency: The challenge for the agency is: 1) to assure that ARRA funds are not subject to fraud, waste and abuse, 2) to evaluate its award portfolio and identify and reach out to those awardees that are able to accelerate spending within the next two years, and 3) to monitor ARRA awards to assure that grantees continue to fulfill their reporting responsibilities. As ARRA awardees spend down their funds, NSF program managers and administrative staff must be alert to indications of fraud, waste and abuse and intervene when appropriate. In tough economic times such as these, they should also be sensitive to the *appearance* of impropriety or waste, even if rules are not explicitly broken.

In addition, NSF must make a serious effort to press ARRA award recipients to accelerate their spending in support of the U.S. economy, which was one of the primary purposes of the Recovery Act. ARRA funds were intended to provide an immediate stimulus to the economy, and a significant number of NSF's ARRA awards will not expire until after 2013. The agency should take all actions necessary to ensure that those funds are spent as prudently and quickly as possible. Finally, NSF must continue to promote the timely and accurate reporting of financial information by ARRA recipients. A series of OIG reports issued during March 2011 reviewed the reporting practices of seven ARRA recipients and found that smaller awardees lack a clear understanding of the requirements, and thus pose an increased risk of non-compliance. NSF must continue to inform and monitor ARRA awardees about their obligations under the Act.

OIG's Assessment of the Agency's Progress: The agency has worked cooperatively with OIG to identify potential occurrences of fraud, waste and abuse associated with ARRA funds. Regarding the low spending rate of ARRA recipients, NSF states that it is consistent with the expectations that surround academic research and its pattern of spending. The agency continues to actively monitor recipient reporting and the spending of grantees. It has enforced its burn rate condition requiring recipients to expend ARRA funds within one year, and implemented report review logic to catch under or over reporting of jobs created by ARRA.

CHALLENGE: Improving Grant Administration

Overview: In 2010, NSF funded more than 55,000 active awards involving over 2,100 institutions. In light of the fact that most of those awards are made as grants, it is essential that the Foundation's grants management processes be robust enough to ensure the highest level of accountability and stewardship in its external awards portfolio. In particular, those processes should enable the agency to engage in effective oversight throughout the lifecycle of an award.

Challenge for the Agency: Previous OIG audits of NSF's operations have found that the Foundation needs to improve its oversight of awardees' financial accountability, programmatic performance, and compliance with applicable federal and NSF requirements. NSF's Award Monitoring and Business Assistance Program (AMBAP) was designed to provide advanced monitoring activities to ensure that awardee institutions possess adequate policies, processes, and systems to manage their NSF awards.

In FY 2011, NSF performed 26 of the 30 AMBAP planned site visits. NSF has indicated that it was unable to undertake all planned visits due to staffing constraints. Performing the AMBAP site visits is resource intensive as it requires an experienced grant officer to travel to the institution, spend several days on-site, prepare the report, and follow-up on any corrective actions. As continuing budget restrictions are anticipated, it will be an ongoing challenge for NSF to maintain adequate oversight.

Our December 2009 audit of the process for resolving audit recommendations directed at NSF grantees and for following up to ensure that corrective actions are implemented, made several recommendations for improvement. A robust audit resolution process is critical to ensure that institutions receiving funds from NSF take the necessary corrective action to properly manage those funds.

In addition, it is important for NSF to ensure that awardees are providing sufficient oversight of sub-recipients. Our audits continue to find problems in sub recipient monitoring such as inadequately supported and unallowable costs. We have recommended that NSF expand and improve its sub-award monitoring procedures.

OIG's Assessment of the Agency's Progress: In its progress report on the 2011 management challenges, NSF reported that it had taken several actions to strengthen grants management including modifying the AMBAP risk assess-

ment based on analysis of prior findings, focusing attention on institutions that have the least experience in managing federal funds, and conducting outreach to improve compliance.

In response to our audit of the audit resolution process, OIG and NSF formed a working group which developed a new audit resolution process to create more effective stewardship over federal funds awarded by NSF. A joint NSF/OIG work group, the Stewardship Collaborative, continues to work to monitor and improve the audit resolution process and to jointly address outstanding and emerging issues.

CHALLENGE: Strengthening Contract Administration

Overview: For two consecutive years, the monitoring of cost reimbursement contracts has been cited as a significant deficiency during NSF's annual financial statement audit. Cost reimbursement contracts are inherently risky because the government shares the risk that poor performance on the part of the contractor will result in cost overruns. In FY 2011, NSF obligated $447 million for all contracts. Of that amount, $315 million were for cost reimbursement contracts, including $232 million in advance payments issued before work was done.

The FY 2010 financial statement audit report presented seven recommendations for strengthening NSF's contract monitoring practices, cautioning the agency that more attention must be paid to the basic tools of the trade such as incurred cost audits, cost disclosure statements, and cost submissions that are used to check the contractor's compliance with contract terms and federal regulations. Contracting weaknesses have come to light as the agency prepares to award its largest contract, which will provide logistical support to the U.S. Antarctic Program over the course of a decade. Following several delays in the procurement process, the award is expected to be completed by mid-November 2011.

Challenge for the Agency: NSF's challenge is to correct the deficiencies in contract administration that have been identified by NSF's financial statement audit, and to continue to improve the effectiveness of its policies, practices and contracting professionals. The agency is still in the process of obtaining audits of millions of dollars in costs incurred from 2005 – 2010 by the current USAP contractor, a process that was delayed because the USAP contractor did not have an approved cost disclosure statement. There is no assurance that the agency does not overpay for these services without incurred cost audits and approved cost disclosure statements. As a matter of policy, NSF should obtain disclosure statements and incurred cost audits of its largest contracts on a regular basis and promptly resolve any questioned costs that arise.

Corrective actions aimed at strengthening the weaknesses cited by the financial auditors should be implemented as soon as possible. Much can be accomplished without additional resources, but NSF has requested 11 additional

staff in its past two budget requests to form an acquisition support team for contracts. In light of the current budget environment, NSF should consider other alternatives besides adding staff in order to address this challenge.

OIG's Assessment of the Agency's Progress: NSF has made progress toward improving its administration of contracts. The agency now requires its contract specialists to ensure that vendors have disclosure statements prior to making awards. In addition, over the past year NSF successfully resolved questioned costs related to the USAP contractor and recovered $10.8 million. It has also fully funded DCAA's costs to complete the 2005 thru 2010 incurred cost audits associated with the contract. However, the audits are still in progress, and it is uncertain as to when they will be concluded.

CHALLENGE: Implementing Improvements in Workforce Management and the Workplace Environment

Overview: World-class executive leadership and effective human capital management are essential to NSF's success as a high-performing organization. Thus, the agency's executives must demonstrate outstanding administrative and leadership skills as well as possess exceptional scientific knowledge and expertise for the agency to achieve its fullest potential. To strengthen NSF's ties with the research community and provide the agency with talent, resources, and cutting-edge research and scientific expertise, NSF relies on a variety of non-permanent staff. In 2010, approximately 26 percent of all NSF employees were in some type of non-permanent status, and 20 of the agency's 75 executive level staff came to NSF from academic and non-profit institutions pursuant to the Intergovernmental Personnel Act (IPA). IPAs generally have not worked in the federal government and therefore, are often not familiar with government rules and administrative processes in the federal workplace.

Challenge for the Agency. The Office of Personnel Management, Congress, and the OIG, as well as NSF management and staff, have expressed concerns about workforce management and the workplace environment at NSF. Addressing workforce and workplace challenges requires sustained management attention and commitment from the Director. NSF's response to these concerns generally has been to assemble working groups of NSF staff to assess the issues and recommend corrective action. These groups have given thorough attention to these issues and made more than 100 recommendations for change. However, NSF does not have an effective, structured process for implementing the workforce management changes called for in these recommendations. The workforce management change process also suffers because it lacks a permanent champion with both the time and authority to lead in this area.

The fact that senior leadership positions including the Director for the Office of Information and Resource Management, the Chief Human Capital Officer, and the Director for Human Resource Management were filled for much of 2011 with individuals serving in a temporary or interim status presents an additional challenge to implementation of workforce management improvements.

NSF also faces ongoing challenges in effectively preparing and integrating its rotating executives into the federal government workplace. The temporary nature of NSF's rotator model creates additional challenges to ensure that new executives have the full set of skills (scientific, administrative, and leadership) necessary to lead the agency.

OIG's Assessment of Agency Progress: NSF has taken several steps to address workforce management and workplace environment challenges. For example, NSF now includes IPAs in the performance management system and plans to issue performance appraisals for IPAs in executive level positions in fall 2011. The agency has promulgated a mandatory management training policy for new managers and executives and has developed and actively promotes new leadership and management training programs. NSF also reported that it has addressed 38 recommendations for workforce improvement and that work on an additional 10 recommendations is underway. Despite this progress, critical human resource leadership positions remain filled with individuals acting in a temporary or interim capacity. Finally, permanent leadership for these critical positions should be a high priority for the agency.

CHALLENGE: Encouraging Ethical Conduct of Research

Overview: In 2007, Congress passed the America COMPETES Act to invest in innovation through research and development, and to improve the competitiveness of the United States. Among other things, the Act mandates new proposal requirements for NSF, such as mentoring plans for all postdoctoral positions, and plans to provide training on the responsible conduct of research to undergraduates, graduate students, and postdoctoral researchers. Information gleaned from site visits and through investigations suggests that many institutions are not taking these requirements seriously, thereby placing NSF funds at risk. Integrity is the keystone of the scientific process and product. Without it, precious research funds are wasted both by unprincipled researchers as well as by those researchers whose time, effort, and funds are wasted when they try to replicate the work of their unprincipled colleagues. NSF is challenged to provide more oversight on institution implementation of these requirements and to provide meaningful guidance regarding Responsible Conduct of Research (RCR) training.

Challenge for the Agency: NSF's primary challenge is to ensure that awardees implement credible RCR programs, thereby creating a top-down culture of academic integrity that extends to all levels of the university. Affirmative steps are necessary to counter the trends of increasing integrity violations. Recent surveys suggest that 75% of high school students and 50% of college students admit to cheating, and 30% of researchers admit to questionable research practices.   The science and engineering workforce is an increasing percentage of the overall workforce, but only 10% hold PhD's. The NSF Act places responsibility on NSF to "strengthen scientific [and engineering] research potential at all levels in... various fields." NSF's research and training programs reach individuals who ultimately are employed by academia, industry, and

government. Its broad effect on the US science, engineering and education workforce means that NSF must act to ensure clear understanding of research tenets for all those receiving the benefits of its funds.

Our investigations are consistent with the survey results mentioned above. OIG has seen a dramatic increase in the substantive allegations of plagiarism and data fabrication, especially as it relates to junior faculty members and graduate students. Over the past 10 years, the number of allegations received by our office has more than tripled, as has the number of findings of research misconduct NSF has made based on OIG investigation reports. Although NSF's response to our research misconduct investigation reports is commend-ably strong, those actions only address incidents after the fact. Extrapolating the number of allegations OIG has received across the 45,000 proposals NSF receives annually, suggests 1300 proposals could contain plagiarism and 450-900 proposals could contain problematic data. Given that NSF funds research in virtually every non-medical research discipline, it is in a unique position to lead the government response to addressing these disturbing trends at all levels of education.

OIG's Assessment of the Agency's Progress: The agency responded to the America COMPETES Act by instituting a requirement that grantees submit mentoring plans for all NSF-supported postdocs and have an RCR training plan for NSF-funded students. The NSF guidance was very limited and offered great flexibility to grantee institutions to develop plans tailored to their needs. OIG has seen grantee RCR programs ranging from high quality mentoring programs to those that simply refer students to web-based or computer-based training. In one instance, a large institution was proud to have trained the two students who were strictly required by NSF policy to be trained (this was an institution of more than 50,000 students). Early intervention is critical to ensur-ing that students understand proper professional practices and the implications of misconduct. Based on what we have seen, NSF should expand its influence in this arena.

Research is also an increasingly global enterprise. Addressing integrity issues and training in domestic efforts is not sufficient to ensure the integrity of NSF funded activities. OIG's review of the Basic Research to Enable Agricultural Development (BREAD) program proposals and awards highlighted a significant failure of the US PIs to collaboratively develop oversight programs with foreign subawardees. The absence of such collaboration resulted in the submission of proposals and the awarding of grants that contained plans applicable to only domestic awards. The most poorly developed aspect of these plans was in the responsible conduct of research training and research misconduct reporting. Based on our report NSF took two actions. The agency modified its subse-quent solicitation to include more details about the expectations for oversight plans; and it encouraged the development of comprehensive oversight plans in collaboration with the international subawardees. Unfortunately, our recent review of annual reports demonstrates little significant improvement in the oversight plans, a result that is distressing. In considering how it will effectively address this challenge NSF should ensure that annual reports and future proposals comprehensively address oversight plans.

CHALLENGE: Effectively Managing Large Facilities and Instruments

Overview: Due to their inherent financial and operational risks, managing the design, construction and operation of NSF's large science infrastructure projects has appeared on OIG's list of management challenges for the past decade. When the agency decides to construct a telescope, earthquake simulator, or other scientific tool, it generally enters into a cooperative agreement with an institution to design, build and manage the facility. NSF received $117 million for its Major Research Equipment and Facilities Construction account for FY 2011 and $400 million in Recovery Act funds in FY 2009 for the construction of three major facilities that are currently under development. The agency has made steady progress towards improving its project management capability since 2003, when NSF first appointed a Deputy Director for Large Facilities. However, according to three recent audits conducted by DCAA for the OIG, costs for contingency provisions contained in each of the contracts are unallowable.

Challenge for the Agency: NSF needs to ensure that the process it is using for developing, managing, and accounting for contingency funds is sound. In September 2011, OIG issued an audit report of a proposal to build the National Ecological Observatory Network. It found that the bid included $76 million in unallowable contingency costs. Earlier in 2011, an audit of the proposal to build the Advanced Technology Solar Telescope questioned 21 percent of the cost, or $62 million, that was reserved for contingencies. The two audits questioned those costs on the basis that setting aside contingent funds for events that lack a certain level of specificity is unallowable.

The same issue also arose in connection with a 2010 audit of the proposed budget for the Ocean Observatories Initiative which included $88 million for contingencies. Auditors recommended the removal of the unallowable contingency provisions from the proposed budgets, and advised NSF to implement policies that require the agency *rather* than the awardee to control the contingency funds until a need for them is demonstrated. Without adequate controls on the establishment and utilization of contingencies, the agency cannot be certain that funds are not being used to hide poor project planning, management or other deficiencies in administration.

OIG's Assessment of the Agency's Progress: During the past year, the agency has participated in ongoing discussions with OIG regarding the resolution of audit findings and recommendations related to contingencies. Once agreement is reached, NSF has indicated that it will update the Contingency Policy and Procedures module of its Large Facilities Manual. In addition, the agency states that it has engaged in a number of activities to strengthen its oversight policies related to large facilities, including several business system reviews of large infrastructure projects such as Cornell High Energy Synchrotron Source (CHESS) and Network for Earthquake Engineering Simulation (NEES).

CHALLENGE: Managing Programs and Resources in Times of Budget Austerity

Overview: Taxpayers expect government managers to be prudent custodians of agency funds in both good times and bad, but expectations are even higher when federal deficits are large and budgets are tight. In tough economic times Federal agencies and programs must make every dollar count or risk losing the public's confidence. Responsible managers should re-evaluate their operational activities in light of the current economic conditions and determine where and how money might be saved. While government budgets are developed long in advance, there are numerous discretionary expenditures in every organization that occur on a weekly or monthly basis and present real opportunities for savings.

Recently OIG has performed several reviews to examine expenditures such as these and identify possible cost savings, as well as changes that might be made to the way goods and services are purchased that could lead to efficiencies and reduced opportunities for fraud waste and abuse. For example, NSF spends $500,000 per year to provide light refreshments to peer review panelists, when a per diem payment for food is already included as part of their compensation. The report recommended that NSF reconsider these expenditures and if it decided to continue them, then centralize the purchasing process as a safeguard against excessive charges and potential fraud. In another review, OIG assessed NSF's purchases of wireless devices and services, which in FY 2010 amounted to $660,000. Like the earlier review, the report cited the need for a centralized procurement process which could result in economies of scale when purchasing, and concluded that the agency should establish a policy to guide the purchase, distribution and use of wireless technology.

Challenge for the Agency: There are many opportunities to conserve money within a $7 billion dollar organization like NSF without impinging on the agency's core mission. The agency is therefore challenged to identify opportunities to streamline processes and cut costs where it can in order to send a clear message to its employees and stakeholders that strong, sound management practices are being applied; reasonable ideas to reduce spending are welcome and will be acted on; and at a time of hardship for so many, the public's continued financial support for science is not taken for granted.

OIG's Assessment of the Agency's Progress: The NSF Director demonstrated support for efforts to curb wasteful spending at a recent all-hands meeting when he asked staff for their ideas to save the agency money. However, NSF should follow up on his statement with a more aggressive outreach initiative to enlist as much participation as possible. The agency responded to the report on refreshment purchases by setting a cost ceiling of $25 per day for each recipient a promise to exercise more oversight over the program, and a commitment to analyze the costs and benefits of centralized purchasing. NSF also agreed to develop a policy regarding wireless devices and services, and to analyze the costs and benefits of a centralized purchasing process before deciding whether or not to adopt the recommendation.

We have also identified two emerging challenges that warrant NSF's close attention—transitioning to cloud computing and to the trusted internet connection and planning for the next NSF headquarters.

Transitioning to Cloud Computing and to the Trusted Internet Connection

Cloud computing enables agencies to achieve efficiencies by utilizing shared computing resources, such as servers, networks, storage, applications, and services. The Federal Cloud Computing Strategy and the Cloud First Policy state that Federal agencies are to consider safe, secure computing options before making any new information technology investments.

In September 2011, NSF reported that it has established pilots to evaluate email and instant messaging operations in a private cloud environment. As NSF considers plans to transition information, applications, or data to the cloud, it needs to ensure that security and internal control considerations are addressed, and that cloud computing contracts provide adequate access to information, and appropriate application maintenance for the protection of data and intellectual property.

Regarding the Trusted Internet Connection, pursuant to OMB direction, agencies are required to reduce and consolidate the number of external access points, including Internet connections, and ensure those connections are routed through an OMB-approved Trusted Internet Connection. NSF has migrated its internet connections to a Trusted Internet Connection provider. NSF retains primary responsibility for information technology security and should continue to coordinate its security requirements with the Trusted Internet Connection provider to ensure it utilizes strong information technology safeguards. It is critical that NSF review and understand the risks and costs of cloud technology as it considers moving data to the cloud. The OIG will be closely following NSF's progress in this endeavor.

Planning for the Next NSF Headquarters

NSF's leases for headquarters facilities in Arlington, Virginia expire in December 2013. It appears that NSF is meeting the planning milestones that are the necessary prerequisites for Congressional action. In its FY 2012 budget submission, NSF requested that funds for its relocation remain available until expended to allow it flexibility for planning and executing the most cost effective acquisition strategies. The report accompanying the Senate Commerce, Justice, Science FY 2012 appropriations bill directed NSF to find savings from future headquarters planning.

Planning for a new headquarters building during a time of budget austerity presents a challenge for NSF. As the lease expiration approaches, the OIG will pay close attention to NSF's activities in this area.

About the Cover...

Original artwork, acrylic on canvas, entitled "The Grizzly Bear" painted by OIG investigative scientist, Scott Moore.