September 2016
Semiannual Report to Congress

Office of Inspector General
NATIONAL SCIENCE FOUNDATION

About The National Science Foundation...

The National Science Foundation (NSF) is charged with supporting and strengthening all research disciplines, 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 49,500 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 Inspector General...

NSF's Office of 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 who receive 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.

About the Cover

Photograph by Scott Moore of a glacier calving.

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From the Inspector General

This Semiannual Report to Congress highlights the activities of the National Science Foundation (NSF), Office of Inspector General for the six month period ending September 30, 2016. During this reporting period, 13 audit reports and reviews were issued, five of which questioned $5.5 million. Our investigative staff closed 58 administrative and criminal/civil investigations, referred four cases for criminal and/or civil prosecution, had seven cases result in research misconduct findings by NSF, and recovered over $2 million for the government.

Each year we seek to target our work and direct our resources to areas that pose the highest risk of misuse of taxpayer dollars and can lead to funds used inappropriately being returned to the government. To that end, each September we identify what we believe are the Foundation's top management challenges for the upcoming fiscal year, and we include those challenges in that month's semiannual report to Congress.

This year, we lead with a challenge focused on NSF's management of large cooperative agreements. Since 2010, my office has issued 28 reports containing more than 80 recommendations related to NSF's use and management of large cooperative agreements for construction and operation of its highest-dollar, highest-risk research facilities. Audits of over $1.1 billion in proposed costs for three construction project raised serious questions about the adequacy of the proposed budgets, which led us to examine NSF's cost surveillance throughout the life cycle of large facility projects. Our work in this area contributed to the Foundation and the National Science Board's decision to request the National Academy of Public Administration to conduct a review focused on NSF's large cooperative agreements.

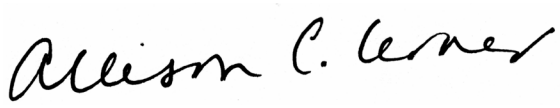
In response to our work and to the NAPA report, NSF has developed new policies and procedures for large facility awards to address some OIG and NAPA recommendations, including required use of a Cost Proposal Review Document to document NSF's analysis of awardees' proposed costs and an independent cost assessment to validate proposed costs. NSF's actions represent important steps toward the goal of increased accountability; however, to ensure that these projects deliver the promised scientific benefits to the public, a culture change at NSF is also needed that makes sound financial management of these projects a priority and ensures that sufficient resources are allocated to ensure that federal funds allocated to these awards are spent properly. Our future work will focus on NSF's ability to accomplish this change and its progress toward improving cost surveillance and implementing its new rules to ensure effective oversight.

The second challenge we identified this year focuses on NSF's management of its business operations. Although the Foundation's main purpose is to award grants for basic research, as a federal agency NSF must also comply with numerous requirements that affect its day-to-day operations. The "business" challenges the agency faces include improving management controls over payments, information security, recordkeeping and reporting.

During this semiannual period, with respect to controls over payments, we found that although NSF technically complied with the Improper Payment Elimination Act, there were substantial concerns with the depth, substance, and documentation of NSF's risk assessment. A robust risk assessment is a vital component to properly evaluating risks that could contribute to improper payments, and we will continue to engage in discussions with the Foundation on this topic, as well as the other business issues identified above. Improvements in these areas will help NSF identify and mitigate risk in its business processes, and thus help ensure the integrity of its operations.

The remaining challenges we identified for Fiscal Year 2017 focus on NSF's management of the IPA program; the Foundation's move to a new headquarters building in Alexandria, Virginia; NSF's management of the U.S. Antarctic Program; and its efforts to improve grant administration and encourage the ethical conduct of research. Expanded discussion of these challenges can be found beginning on page 25 of this report.

Our work in this and every semiannual period reflects my office's sustained commitment to helping NSF be an effective steward of taxpayer dollars. We in OIG look forward to our continued partnership with NSF and the Congress to this end.



Report Highlights

- The Improper Payments Elimination and Recovery Act (IPERA) requires agencies to periodically review and identify programs and activities that may be susceptible to significant fraud. Although our audit of NSF's compliance with IPERA found that NSF technically complied with the requirements of IPERA, we identified substantial concerns with the depth, substance, and documentation of the NSF risk assessment. NSF's risk assessment process needs significant improvements to ensure that the agency thoroughly assesses and documents its risk of improper payments.

- A multi-agency investigation of a small business that received more than $50 million through the Small Business Innovation Research (SBIR) program found that company managers directed employees to charge their time to projects whether or not they worked on them so the company could receive more funds from the government. The company and its founder agreed to pay over $2 million to resolve the allegations. NSF's portion of the settlement was more than $80,000.

- NSF debarred multiple companies and individuals in response to OIG investigations: a small business and its CEO who were convicted on seven counts of wire fraud and two counts of false claims relating to SBIR awards, a PI and a small business who had been convicted and sentenced for false statements relating to SBIR awards, and a small business and its owner who had been convicted of wire fraud.

Compliance with the Improper Payments Elimination and Recovery Act

The Improper Payments Elimination and Recovery Act of 2010[1] (IPERA) requires agencies to periodically review and identify programs and activities that may be susceptible to significant improper payments. Office of Management and Budget (OMB) implementing guidance for IPERA, OMB M-15-02,[2] requires Federal agencies to institute a systematic method of reviewing all programs and activities and identify programs susceptible to significant improper payments. OMB requires agencies to assess risk against nine (9) factors[3] that are likely to contribute to improper payments.

In addition, IPERA and OMB M-15-02 require each Office of Inspector General (OIG) to annually review improper payment reporting in the agency's Annual Financial Report (AFR) or Performance and Accountability Report. To determine an agency's compliance with IPERA, the Inspector General must assess six requirements. If an agency does not meet one or more of these requirements, then it is not compliant with IPERA. Our audit[4] of NSF's IPERA compliance for Fiscal Year (FY) 2014 found that NSF did not meet IPERA reporting requirements because NSF's FY 2014 risk assessment did not result from a systematic method of review and did not adequately evaluate all the required risk factors.

We found that NSF complied with IPERA reporting requirements for FY 2015 based on our review of the agency's AFR, website, and risk assessment. However, we determined that NSF's risk assessment process needs significant improvements to ensure that the agency thoroughly assesses and documents its risk of improper payments.

Although we concluded that NSF technically complied with the requirements of IPERA, we identified substantial concerns with the depth, substance, and documentation of the NSF risk assessment. Specifically, we found significant limitations in NSF's analysis of six of the nine OMB risk factors and its assessment of NSF payments to employees. With respect to the first concern, ensuring a thorough risk assessment depends on asking the right questions of the appropriate personnel and making sure that the answers provide enough detail to enable NSF to assess risk that could contribute to improper payments. We found that in some instances, the interviews did not address areas of known risks in sufficient detail to provide a systematic risk assessment.

1. As amended by the Improper Payments Elimination and Recovery Improvement Act of 2012 (IPERIA).
2. OMB Memorandum M-15-02, Appendix C to Circular No. A-123, Requirements for Effective Estimation and Remediation of Improper Payments, October 20, 2014.
3. A listing of the nine OMB risk factors can be found at Appendix C.
4. Audit of NSF's Compliance with Improper Payments Elimination and Recovery Act for FY 2014, OIG Report No. 15-2-007.

In others, we could not determine why some questions and not others were asked. We also found that in some instances, NSF accepted answers at face value and did not obtain key information to support the information provided.

With respect to the second limitation, NSF did not thoroughly assess payments to employees. NSF did not conduct IPERA-specific testing on payroll in FY 2015 or interview NSF's Division of Human Resource Management (HRM), the division responsible for salary and benefits process, to discuss any of the nine OMB risk factors during the IPERA risk assessment. As a result of these limitations, NSF's risk assessment may not have fully explored the agency's susceptibility to improper payments.

Given that OMB permits agencies to use quantitative and/or qualitative approaches when conducting IPERA risk assessments, and NSF continues to encounter challenges in performing a qualitative assessment, a return to employing both a quantitative statistical sample approach, which is more structured and less subjective, and a qualitative approach, may be a better solution for NSF.

We made eight recommendations, including that NSF allow sufficient time to conduct a thorough and robust assessment of the agency's susceptibility to improper payments and that NSF conduct a quantitative approach for IPERA risk assessments to gain insight on how NSF funds are used by awardees and assess whether both primary and secondary payments were proper.

In response to our report, the agency prepared a Corrective Action Plan, which we agreed resolved all eight related recommendations. NSF stated that it plans to perform a three year IPERA qualitative risk assessment cycle by FY 2018. During this three year cycle, NSF management stated that it will continue to collect information for its risk assessment.

Management Fee in NSF Awards

As discussed in OIG's *White Paper on Management Fees* and in our observations on NSF's revised management fee policy, federal agencies have awarded management fees to Federally Funded Research and Development Centers to cover ordinary and necessary, but otherwise non-reimbursable, business expenses. The government instituted management fees as a means to pay these non-reimbursable ordinary and necessary expenses to enable non-profit research centers to continue to operate in a business environment.

During this semiannual period, auditors examined the expenditure and use of management fees at two NSF awardees – the National Ecological Observatory Network (NEON) and the Association of Universities for Research in Astronomy (AURA).

With respect to NEON, auditors found that for the period October 1, 2011, to September 30, 2014, NEON's use of management fee was not in accordance with its NSF proposals and a significant portion of the fees were not used for ordinary and

necessary expanses to facilitate basic business operations. NEON funds provided as management fees to were used to pay for lobbying, alcohol, and entertainment, among other things. NEON's May 19, 2016, response did not dispute the audit findings.

The report made five recommendations, including that NSF request that NEON, Inc. (NEON, Inc. is the awardee for the NEON project) develop controls and processes to ensure that it does not use management fee for inappropriate uses and develop procedures to report annually to NSF its use of management fees.

With respect to management fee at AURA for the period October 1, 2011 to September 30, 2014, auditors found that because AURA did not track its use of NSF-provided management fees it could have used the fees to pay for expenses that were neither ordinary nor necessary to facilitate basic business operations at its NSF-funded centers. AURA was unable to directly correlate cost items to specific funding sources. Auditors noted that AURA could have used NSF management fees to pay for expenses such as alcohol and entertainment, repairs to tennis courts, and gas and electricity to power a pool. While specific NSF guidance regarding the types of expenses that could be charged as management fees was not finalized until June 2015, expenses incurred for alcohol, social activities, and entertainment would not have been permissible under the NSF's current guidance.

The report contained five recommendations, including that NSF request that AURA develop controls and processes to ensure that it does not use management fee for inappropriate uses and develop procedures to report annually to NSF on its use of management fee. AURA stated that it did not track its use of NSF-provided management fees separately because there was no requirement to do so in the period covered by the audit.

The auditors also examined NSF's negotiation, award, and management of management fees awarded to AURA and NEON. Auditors found that, for the period covered by the audit, NSF did not have policies and procedures on negotiating reasonable management fee rates. As a result, the only guidance NSF had to determine the amount of management fee that it should provide was based on prior awards and on what the awardees said that they needed. Thus, NSF approved the management fee amount proposed by the awardees, and did not obtain any documentation to support their need for this funding.

As a result, NSF continued to award management fee based on the initial proposed amount, rather than on a determination that the awardee needed the additional funds.

The auditors made five recommendations, including that NSF consider recommendations in the December 2015 National Academy of Public Administration (NAPA) report concerning management fee and that the agency revise its management fee policy to require that awardees submit a written assertion of need that details all sources of revenue, and examine all federal and non-federal sources of revenue for each awardee in making a determination as to whether a management fee is necessary and warranted.

NSF agreed to consider the management fee recommendations in the NAPA report, to ensure compliance with its new management fee policy, and to develop procedures to review awardees' use of management fee. NSF disagreed with the recommendation to revise its management fee policy to ensure that awardees only receive management fees necessary for financial viability.

As stated in its Corrective Action Plan, NSF is re-examining this matter as part of the current review of management fee policy being undertaken to address the NAPA recommendation.

Audits of Three NSF Awardees

Three audits were conducted of NSF awardees that had expended more than $524 million to determine the reasonableness, allowability, and allocability of costs. The audits identified more than $4 million of questioned costs because each of the institutions audited – the University of Michigan, Columbia University, and Georgetown University – charged salaries to NSF awards that exceeded NSF's compensation limit for senior project personnel. Auditors questioned more than $2.2 million at the University of Michigan; nearly $775,000 at Columbia; and almost $10,000 at Georgetown in senior-personnel salaries that exceeded the two months of proposed salary allowable under NSF's policy.

The University of Michigan and Columbia University disagreed with the questioned salary overcharges and asserted that the charges were allowable. Georgetown University concurred with the finding and agreed to repay the questioned costs.

In addition to costs questioned for salaries exceeding NSF limits, other questioned costs included those related to equipment costs that did not appear to benefit the NSF awards, unallowable and unsupported travel expenses, unallowable entertainment expenses, and improperly claimed indirect costs. The audit of Columbia University also reviewed compliance with the Recovery Act and found that those funds were properly accounted for and segregated, as required by law.

Recommendations included that NSF require the institutions to repay the questioned costs and to strengthen controls over the areas identified within the findings. As noted below, the recommendations in the Georgetown report were resolved this period. NSF is currently working to resolve the findings and recommendations in the other two reports.

NSF's Policies and Practices for Access Control Generally Reflect Appropriate Standards

Preventing access to an agency's systems by unauthorized users is the primary purpose of logical access controls. Section 406 of the Cybersecurity Act of 2015[5] requires Inspectors General for agencies with covered systems[6] to: 1) describe the logical access[7] policies and practices used to access a covered system; 2) describe and list the agency's access controls; 3) explain the reasons for not using access controls,

if applicable 4) describe the agency's information security management practices; and 5) describe agency policies designed to ensure that entities, including contractors that provide services to the agency, implement information security practices.

The statute also requested Inspectors General to determine whether the agency's access policies and procedures reflected appropriate standards. We reviewed NSF's Fiscal Year (FY) 2015 Federal Information Security Management Act (FISMA), assessment report, which found no material weaknesses in NSF's compliance with the requirements of FISMA and related information security policies, procedures, standards, and guidelines.

Based on the information NSF provided, including the policies we identified, we concluded that NSF's policies and practices for access controls appeared to generally reflect appropriate standards. We also described the various policies identified in the Cybersecurity Act. However, we did not verify or test the effectiveness of the access controls that NSF reported that it uses to protect its systems and applications from unauthorized users, because verification or testing was not required by the Cybersecurity Act of 2015. We will examine access controls of some NSF systems through our FISMA review. In its response, NSF agreed with OIG's conclusion.

Proper Application of Final Negotiated Indirect Cost Rates

An incurred cost submission is a certified representation of costs claimed for each award. Auditors found that FY 2010 and 2011 incurred cost submissions for the Consortium for Ocean Leadership (COL) and the FYs 2008, 2009, and 2010 incurred cost submissions for Associated Universities, Inc. (AUI) were not updated to incorporate NSF-negotiated indirect cost rates. As a result, there is a risk of overpayment because the incurred costs submissions did not reflect the negotiated final indirect cost rates.

Auditors found an overstatement of more than $80,000, most of which was applicable to NSF awards, in COL's incurred cost submissions costs. For AUI, there was an overstatement of more than $1.4 million applicable to NSF awards. It is important for NSF to be aware of overstatements in incurred cost submissions from its awardees to ensure that the awardees are not overcharging NSF. To prevent this situation in the future, NSF should require COL and AUI to update all of their incurred cost submissions and accounting records to incorporate final negotiated indirect cost rates.

In addition, our review of other cost information AUI provided found that AUI did not apply its negotiated General and Administrative rate to most of its awards and we suggested that NSF address this issue during audit resolution.

5. Division N of the Consolidated Appropriations Act, 2016, Pub. L. No. 114-113 (2015).
6. Covered systems include systems that provide access to personally identifiable information (PII), such as name, social security number, or biometric records.
7. Logical access controls are system or application based. This report addresses logical access controls as required by the statute and will refer to these controls as access controls throughout this report. Physical access controls refer to such things as locking rooms where servers are located.

Pending its review, NSF agreed with the recommendation to resolve the questioned costs and to require updated incurred costs submission.

Audit Resolution Process

OMB Circular A-50 and the Inspector General Act prescribe the post-audit process for recommendations in issued reports. In accordance with A-50, when NSF proposes actions that are consistent with our recommendations, the recommendations are considered to be "resolved (i.e., OIG and NSF agree that the proposed corrective actions address the recommendations).

However, if NSF and OIG cannot agree on the adequacy of the proposed actions, OIG may elevate the recommendation to the agency's follow-up official, who has the authority to resolve the differences. Elevating recommendations is the final step available to the OIG in an attempt to urge NSF to address risk to federal funds. During this period, we elevated a recommendation pertaining to questioned costs for excess senior salaries.

NSF's Audit Follow-up Official's Decision on Questioned Costs for Senior Salaries for Florida State University

In August 2016, NSF's Audit Follow-up Official decided not to sustain more than $444,000 in questioned costs for senior salaries at Florida State University. NSF sustained $29,782 of the other $123,164 of questioned costs, which were not elevated to NSF's audit follow-up official.

The OIG requested that the Audit Follow-up Official reconsider the NSF Management Decision based on the University's failure to follow its own policies regarding treatment of the $444,966 in excess salaries, as well as other overages. NSF's Audit Follow-up Official stated that based on the information reviewed, Florida State treated all 12 instances of excess senior salary accurately for the six individuals in question according to its policy and that additional review was not necessary; therefore NSF's decision to allow the $444,966 in questioned costs was upheld.

This is the fourth time since March 2015 that we have referred matters related to questioned senior salary costs that exceeded the two-month limit to the Audit Follow-up Official. None of the $2.4 million referred on those four audits has been sustained. Although we continue to disagree with NSF's final decisions in these cases, we will not refer similar findings to the Audit Follow-up Official in the future.

Georgetown University Agrees to Return to NSF more than $110,000 in Questioned Costs

In response to recommendations, Georgetown agreed to return to NSF more than $110,000 in costs claimed on 17 NSF awards. The questioned costs included insufficiently supported expenditures, inappropriately claimed indirect costs, and travel

expenses that did not benefit the NSF award. NSF did not sustain more than $9,800 in salary costs that exceeded NSF's two-month limit, although Georgetown had agreed to return those funds. During resolution of the questioned costs, NSF disallowed $34,916 in subaward costs, which were determined to be unallowable on the basis of the University's failure to comply with award terms and conditions.

National Science Board (NSB) Generally Agrees with Recommendation to Ensure NSB's Compliance with the Sunshine Act

In response to our recommendations to strengthen the National Science Board's controls to ensure compliance with the Sunshine Act, NSB revised its analysis of when it is appropriate to close meetings under exemption 9(B). Other steps the Board took to promote public understanding of topics that will be discussed at Board meetings included improving the timeliness of public notices for teleconferences and notices for agenda items added on short notice.

NSF Acts to Obtain Financial and Project Information to Oversee the NEON Project

NSF has taken several steps in response to our recommendation to ensure that it has the financial and project information it needs to oversee the NEON project, including obtaining an independent cost estimate of the cost to complete the NEON project, conducting monthly expenditure reviews, and increasing technical oversight, among other things.

NSF Obtains $295,000 Refund on U.S. Arctic Program Contract

In response to our recommendations, NSF obtained a refund of $295,000 because proposed costs on several contracts pertaining to the U.S. Arctic program did not comply with contract terms for accumulating and billing incurred costs.

NSF Takes Steps to Help Ensure Safety in Antarctic Program

In response to our *Audit of Health and Safety in the U.S. Antarctic Program,* which identified opportunities to help ensure health and safety of participants in the USAP program, NSF will require annual reports of misconduct by NSF employees and contractors and will review those reports to determine whether a participant should be allowed to continue to participate in the USAP program. In its corrective action plan, NSF management stated that it will proceed with its plan to host a law enforcement site visit to Antarctica and that, resources and schedules permitting, the site visit would occur in 2015/2016. As of September 30, 2016, the site visit had not occurred.

In addition, NSF agreed that policies on the use of expired medications, the types and tracking of medications stored for use in the event fire destroys the clinic, and access to the McMurdo pharmacy should be developed.

NSF Requires Incurred Cost Submissions and Audits for Two Large Facility Projects

We previously reported that the FYs 2010-2011 incurred costs submissions from the National Ecological Observatory Network (NEON) and the FYs 2011-2013 submissions from Associated Universities, (AUI) did not contain sufficient information to perform incurred costs audits.

NSF stated that it will require annual incurred cost information for large facility projects, including NEON and AUI and will obtain incurred costs audits. The recommendations will be closed when NEON and AUI provide NSF adequate annual incurred cost submissions that are sufficient to perform the planned incurred cost audits.

OIG Conducts Peer Review of Pension Benefit Guaranty Corporation OIG

Audit organizations that perform audits and attestation engagements in accordance with the Comptroller General's Government Auditing Standards (GAS) must have an external peer review performed every three years by independent reviewers. Peer reviews focus on quality control, which includes organizational structure and policies and procedures that help ensure compliance with GAS.

During this reporting period, we completed a peer review of the Pension Benefit Guaranty Corporation (PBGC) Office of Inspector General's Audit Office for the year ending September 30, 2015. We determined that PBGC OIG's system of quality control was suitably designed to provide reasonable assurance that audits were performed and reported in accordance with Government Auditing Standards. A copy of the NSF OIG peer review report is available on the PBGC OIG website.[8]

Single Audits

Eighty Percent of Single Audit Findings Identified as Material Weaknesses and Significant Deficiencies

OMB Circular A-133 and 2 CFR 200, "Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards," ("Uniform Guidance") provide audit requirements for state and local governments, colleges and universities, and non-profit organizations receiving federal awards. Under the guidance, covered entities that expend $500,000 or more a year ($750,000 or more for audit periods ending on or after December 26, 2015) in federal awards must obtain an annual organization-wide audit that includes opinions on 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 Uniform Guidance, and *Government Auditing Standards*.

8. *http://oig.pbgc.gov/pdfs/PeerReview2016.pdf*

The 86 audit reports[9] reviewed and referred to NSF's Cost Analysis and Audit Resolution (CAAR) Branch this period covered NSF expenditures of approximately $3.6 billion as reported in the annual Single Audits during audit years 2011 through 2015, and resulted in 81 findings at 42 NSF awardees. Twelve of the 85 NSF awardees (14 percent) received other than unmodified opinions on their financial statements and/or compliance with federal award requirements. The auditors issued qualified opinions on both the financial statements and on compliance with federal award requirements for one awardee, and disclaimed opinions on both the financial statements and on compliance with federal award requirements in two separate audits for another awardee. The auditors also either issued a qualified opinion or disclaimed an opinion on the financial statements for three awardees, and on compliance with federal award requirements for seven awardees.

There was a total of more than $1.1 million in questioned costs (including approximately $79,000 in in cost sharing at risk) over this same five-year period. At 32 of the 42 awardees with findings, auditors reported 65 material weaknesses and/or significant deficiencies in internal control over compliance, representing more than 80 percent of findings identified during the period, calling into question the awardees' ability to provide effective stewardship over federal funds.

Awardees' lack of internal controls and noncompliance with federal requirements included: untimely and/or incorrect reporting of time and effort; untimely or inaccurate submission of financial reports; failure to ensure that property purchased with federal funds was adequately tracked and safeguarded; failure to ensure that the procurement process included verification that vendors had not been suspended or debarred; and inadequate monitoring of subawardees.

Thirty findings, including 23 material weaknesses and significant deficiencies, were repeated from the prior audit.

Desk Reviews Find Decrease in the Quality and Timeliness of Single Audits

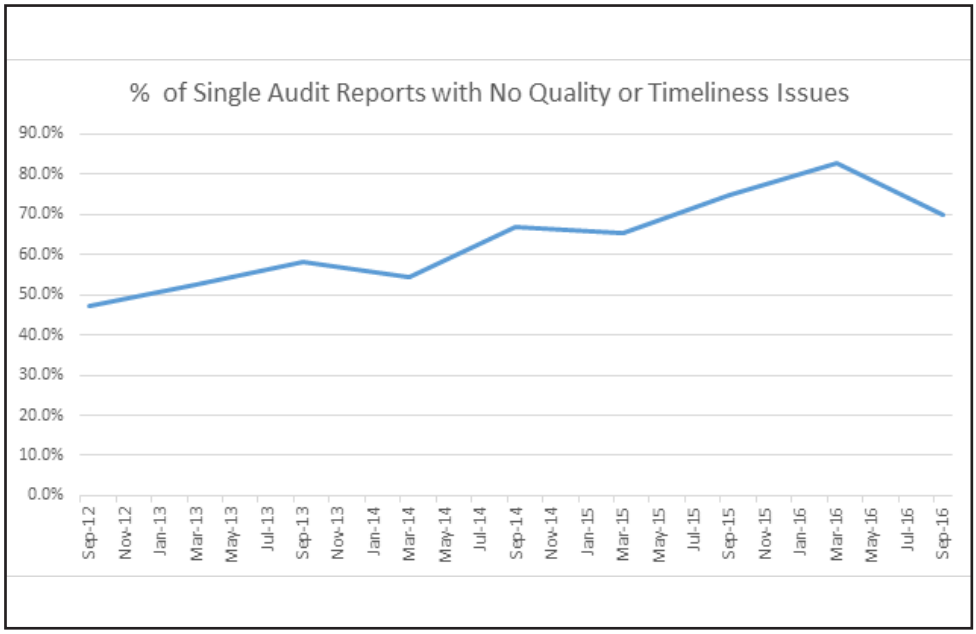
The audit findings in Single Audit Reports are useful to NSF in planning advanced monitoring site visits and other post-award monitoring efforts. Because of the importance of Single Audit Reports to this oversight process, OIG conducts desk reviews on all reports for which NSF is the cognizant or oversight agency for audit, and provides guidance to awardees and auditors to improve audit quality in future reports. In addition, OIG returns to the awardees reports that are deemed inadequate so that the awardees can work with the audit firms to take corrective action.

During the period, we conducted desk reviews of 30 audit reports[10] and found that 21 (70 percent) fully met federal reporting requirements. Nine reports contained audit quality and timeliness issues. The quality issues included four 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.

9. The 86 audit reports represented 85 NSF awardees.
10. The audits were conducted by 28 independent public accounting firms.

In addition, three reports were not submitted to the Federal Audit Clearinghouse in a timely manner; two reports included an incomplete presentation of the audit finding; two reports contained an incomplete Corrective Action Plan to address the audit recommendations; one report was submitted to the Federal Audit Clearinghouse with an inaccurate Data Collection Form (Form SF-SAC); and one report failed to include all of the required report elements.

As noted in the following table, after a steady increase in quality over the past several years, the percentage of reports that fully met federal reporting requirements decreased during this period.



For those errors that potentially impacted the reliability of the audit 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. We noted that two of the reports contained deficiencies previously identified in prior reviews, suggesting that awardees and audit firms are not taking appropriate corrective action in response to our reviews. After we completed the thirty reviews, we issued a letter to each auditor and awardee informing them of the results of our review and the specific issues they should work on to improve the quality and reliability of the report.

Investigations

Program Integrity Investigations

SBIR Company Agrees to Pay More than $2 Million to Settle Allegations of Time and Effort Fraud

A multi-agency investigation of a small business that received more than $50 million through the Small Business Innovation Research (SBIR) program found that company managers directed employees to charge their time to projects whether or not they worked on them so the company could receive more funds from the government. The company and its founder entered into a civil settlement agreement with the Department of Justice and agreed to pay over $2 million to resolve the allegations. NSF's portion of the settlement was more than $80,000.

SBIR Company Enters Civil Settlement for over $350,000

NSF had previously suspended a small business and its principals government-wide[11] and awards for more than $1.9 million had been terminated because of several allegations, including fabrication of timesheets.[12] The small business and its principals entered into a civil settlement agreement with the Department of Justice and agreed to pay more than $350,000 to resolve allegations related to their SBIR awards. We recommended that NSF debar the small business and its principals for five years; NSF's decision is pending.

SBIR/STTR Company Settles for over $250,000

Our investigation of an SBIR/STTR awardee company found that the company owner/PI falsely certified his primary employment and did not pay subawardees for their work. He entered into a civil settlement agreement with the Department of Justice and agreed to pay more than $250,000 to resolve the allegations.

Fellowship Recipient Pleads Guilty to Submitting Forged Document

A former graduate student pled guilty to one count of wire fraud after our investigation determined he falsified portions of a fellowship application so he could meet the fellowship criteria. He also fabricated a letter of support that contained false information and forged the signature of an educational professional. The nearly $40,000 of improperly paid funds were returned to NSF. Sentencing is scheduled in December 2016.

HIGHLIGHTS

11. September 2015 Semiannual Report, p.26.
12. March 2016 Semiannual Report, p.22.

NSF Receives Restitution from PI and a Company Employee

As a result of a joint investigation, a PI and a company employee were sentenced to prison and ordered to pay restitution for making false statements to the SBIR program.[13] In this reporting period, the PI paid approximately $40,000 in restitution to NSF and the employee paid $50,000.

Non-profit Returns More than $150,000 to NSF

Our investigation found that a non-profit organization did not have proper documentation to support sub-award costs charged to an NSF award. The non-profit returned to NSF more than $150,000 in unsupported costs.

University Repaid Nearly $60,000 for Mischarged Participant Support Costs

Our investigation determined that a university had re-budgeted participant support, which does not incur indirect costs, to salaries, which do incur indirect costs, without prior approval from the Program Officer, as required by the NSF award terms and conditions. The university returned approximately $60,000 for the mischarged participant support costs.

Three Individuals and Their Six Companies Suspended Government-Wide

In response to our recommendation, NSF suspended three individuals and six companies government-wide for a fraud scheme to obtain SBIR funds by creating shell companies and falsifying letters of support.[14] The criminal investigation is ongoing.

Company Enters into Administrative Agreement with NSF

Our investigation determined that a small business grantee did not make subawards to two collaborating universities, as budgeted and represented to NSF, and the company claimed costs that were incurred after the expiration dates on two awards. In addition, we found that eight proposals submitted by the small business contained a substantive amount of apparently plagiarized text. The small business and its president entered into an administrative agreement with NSF, which included repayment of approximately $70,000; submission of certifications and assurances for two years; a four-year bar of the company president from serving as an NSF merit reviewer; and completion of RCR training for the company president and two other employees.

University Returns More than $50,000 to NSF

A university returned more than $50,000 to NSF after our investigation found that a PI used award funds to pay friends and students who did not work on the award.

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13. March 2013 Semiannual Report, p.23; September 2013 Semiannual Report, p.16; September 2014 Semiannual Report, p.23; September 2015 Semiannual Report, p. 23; March 2016 Semiannual Report, p.20.
14. March 2016 Semiannual Report, p.20.

NSF Terminates Award to Small Business

Following an NSF SBIR/STTR Grantee's Workshop, during which PI eligibility was addressed, a first-time PI on an SBIR award disclosed that he had not complied with NSF's primary employment requirement, due to the technical constraints of his visa status. NSF agreed with our recommendation to terminate the award, withhold the final payment of approximately $80,000, and request repayment of the approximately $150,000 previously disbursed.

Multiple Companies and Individuals Debarred in Response to OIG Investigations

Two Scientists and Two Small Businesses Debarred for Fifteen Years

As a result of a joint investigation,[15] a federal court sentenced two scientists to fifteen and thirteen years in prison. During this reporting period, NASA debarred the two scientists and their small businesses for fifteen years.

Small Business and CEO Debarred for Six Years

As a result of a joint investigation, a small business and its CEO were convicted on seven counts of wire fraud and two counts of false claims relating to NSF and NASA SBIR awards.[16] NASA debarred the small business and CEO for six years.

PI Debarred Following Criminal Conviction

NSF debarred for five years a small business and a PI who had been convicted and sentenced for false statements relating to SBIR awards.[17]

NSF Debars PI and Terminates Award

NSF debarred for five years a small business and its owner who had been convicted for wire fraud.[18] NSF also terminated the remaining NSF award, resulting in more than $140,000 of funds put to better use.

15. September 2014 Semiannual Report, pp.19-20; March 2015 Semiannual Report, p.19; September 2015 Semiannual Report, p.21.
16. September 2015 Semiannual Report, pp.21-22; March 2016 Semiannual Report, p.20.
17. March 2014 Semiannual Report, p.16; September 2014 Semiannual Report, p.23.
18. March 2016 Semiannual Report, pp. 20-21; September 2015 Semiannual Report, p.25; March 2014 Semiannual Report, p.20.

Administrative Investigations

PI Violates CAREER Award Requirements

During a CAREER award period a PI took a position at a foreign university, in violation of the award requirement that the professor hold a tenure-track position at a U.S. institution. The university granted the professor adjunct status in order to maintain his research program. The professor did not report his change in status to his program officer, and the university did not relinquish the award. The university agreed that the award should have been relinquished, and it credited back to the award the nearly $70,000 expended after the professor became an adjunct. We recommended NSF terminate the award and recover over $200,000 of unexpended award funds; the agency's decision is pending.

Former NSF Program Officer Misuses Guest Account to Access Collaborator's Proposal

Our investigation found that a former NSF program officer accessed a confidential proposal submitted by a PI, who identified the former program officer as a research collaborator. The former program officer had been granted visitor access to NSF's proposal system after he left so that he could complete actions in his portfolio in the months after his official departure from NSF. NSF concluded that the former program officer's actions were improper under NSF policies for handling sensitive information and rules of behavior for NSF IT systems, noting that neither curiosity nor interest justifies a program officer's "reason to know" the contents of a proposal outside his portfolio. NSF barred the former program officer from serving in an advisory capacity, including a panelist or ad hoc reviewer for one year.

Professor Alleges Retaliation for Whistleblowing under ARRA Award

The American Recovery and Reinvestment Act (ARRA) provides whistleblower protections to employees of awardees who reasonably believe that they are being retaliated against for reporting allegations of misuse of ARRA funds received by their employers. Under ARRA, we investigate such allegations, and NSF then determines whether there is sufficient basis to conclude that the awardee subjected the employee to a prohibited reprisal.

A professor alleged to a journal and to officials at his university that a paper he co-authored had been plagiarized. The professor subsequently alleged that officials at his university threatened him, and issued sanctions against him for improper advising and sexual misconduct, in retaliation for the plagiarism allegation. The paper acknowledged support from an NSF award funded under ARRA. As required by ARRA, we investigated the matter and submitted a report of investigation to NSF; the agency determination is pending.

Research Misconduct Investigations

Research Misconduct damages the scientific enterprise, is a potential 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 (plagiarism, data fabrication, and data falsification) 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.

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 termination of employment. NSF's actions in research misconduct cases ranged from letters of reprimand to a proposed five-year debarment. In each case below, we recommended that NSF make a finding of research misconduct, issue a letter of reprimand, and require the subject to complete a Responsible Conduct of Research (RCR) training program. We also recommended additional significant actions as summarized below. Unless otherwise specified, NSF decisions on our recommendations are pending.

Associate Professor Falsifies and Fabricates Research

An associate professor at a university falsified data and fabricated results in a published article, a submitted manuscript, a draft manuscript, and a meeting abstract that were all supported by an NSF award. The university initiated an inquiry into allegations of research misconduct against both the associate professor and his collaborator/spouse, and both immediately departed the country and ceased communication with the university. The university concluded the associate professor's acts were intentional and constituted research misconduct; however, it found there was insufficient evidence to support a finding against the spouse. The university prohibited both individuals from returning to the university and contacted the journal, resulting in a retraction of the published article.

We concurred with the university's findings and recommended that NSF debar the associate professor for five years. We further recommended that, for five years after the debarment period, NSF require certifications and assurances; require submission of a detailed data management plan with annual certifications of adherence for any resulting awards; and bar him from participating as a peer reviewer, advisor, or consultant for NSF.

Graduate Student Falsifies Experiments

In NSF-supported research, a graduate student falsely portrayed numerous experimental procedures and falsified data. After multiple attempts failed to replicate the student's data, the student's mentor retracted two papers. The student returned

to her native country prior to the university investigation. The university investigation concluded that the student falsified fourteen figures in the two papers. However, the committee felt a lack of physical evidence precluded them from drawing any conclusions on whether the student had falsely portrayed the experiments.

We concurred with most of the university's conclusions; however, we found that a preponderance of the evidence indicated that the graduate student falsely portrayed the experimental procedures. We recommended that NSF debar the graduate student for five years and require the graduate student to submit certifications and assurances for three years after the debarment.

Manuscript from NSF-Funded Center Almost Entirely Plagiarized

A university faculty member's seven page manuscript was almost entirely plagiarized from two law review articles. In response to a journal's query, the faculty member attributed the plagiarism to "a tragic sequence of mistakes and honest errors," and said her two co-authors submitted the manuscript to the journal without her approval.

The university investigation concluded that the faculty member intentionally committed plagiarism, and the university placed a letter of reprimand permanently in the faculty member's file; required that a senior faculty member monitor her written work for two years; placed her on probation for two years; and removed her from the NSF-funded center projects for no less than two years.

We concurred with the university's report and recommended that NSF debar the faculty member for one year. We also recommended that, for three years following the debarment period, NSF bar her from serving as an NSF peer reviewer, advisor, or consultant and require that she submit certifications and assurances.

Assistant Professor Submits Others' Research for Funding

Our investigation found that an assistant professor submitted nine proposals to NSF with plagiarized text; six of the proposals also proposed to do work that had already been completed and published by other researchers. We recommended that NSF debar the assistant professor for two years. We also recommended that, for two years after the debarment ends, NSF bar the assistant professor from serving as a reviewer, advisor or consultant, and require submission of certifications and assurances.

Students Fabricate Data on a PhD Student's NSF-Funded Project

A PhD candidate hired several students to work as hourly employees to code data related to her dissertation research. Two of the students entered copied data they claimed they had individually coded. The university learned of their conduct, examined it in the context of the school's student code of conduct, terminated the students from the project, informed our office of the misconduct, and credited the students' salaries to the NSF award (approximately $2,300).

We conducted an investigation to examine the students' actions in relation to research misconduct. We concluded that the students fabricated data, and that these actions were a significant departure from the standards of the research community and therefore constituted research misconduct. We provided our investigative findings to NSF along with recommendations for findings of research misconduct, debarment, mandatory responsible conduct of research training, and imposition of certifications and assurances for future documents submitted to NSF.

Assistant Professor Falsifies Data in NSF proposal

An assistant professor at a university falsified data in an NSF proposal. The university's Investigation Committee determined that the assistant professor's acts of mislabeling figures in a published manuscript, poster, and NSF proposal met the definition of falsification of data. The Investigation Committee did not make a research misconduct finding, because they concluded the preponderance of the evidence did not establish that the acts were committed intentionally, knowingly, or recklessly. The university agreed with the Investigation Committee's conclusion that research misconduct did not occur. The university implemented the recommended actions, which included a correction of the publication, remedial training courses, and oversight by a mentoring committee for a period of three years.

We disagreed, in part, with the university's findings. We did not find that the mislabeled figure in the manuscript constituted an act of data falsification but rather was a mistake generated during the manuscript publisher's formatting process. We did conclude that the other two acts of data falsification were committed recklessly, fit a pattern of research misconduct, and were a significant departure from accepted practices. We recommended that, for one year, NSF require certifications and assurances; require submission of a detailed data management plan for any resulting awards; and bar the assistant professor from participating as a peer reviewer, advisor, or consultant for NSF.

Actions by NSF Management on Previously Reported Research Misconduct Investigations

NSF has taken administrative action to address our recommendations on ten 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 RCR training. NSF also took additional significant actions in response to our recommendations, as summarized below:

- In the case of the graduate student who submitted eleven NSF proposals in order to receive funding for work he had already completed[19] and manipulated his published manuscripts to hide it, NSF proposed a three-year debarment.

19. March 2016 Semiannual Report, p.24.

- In the case of a university professor who fabricated data and falsified the status of manuscripts in NSF documents,[20] NSF imposed a one-year debarment followed by three years of certifications and assurances. NSF did not impose requirements following the debarment period for a data management plan or prohibit the professor from participating as an advisor or consultant for NSF, as we had recommended.
- In the case of a university professor who plagiarized material from three sources into an awarded proposal where he was the listed co-PI,[21] NSF required certifications and assurances for three years, and barred the professor from serving as peer reviewer, advisor, or consultant for NSF for one year.
- NSF proposed to debar for five years a graduate student who falsified her dissertation data.[22]
- In the case of the full professor whose awarded proposal was found to contain plagiarized text,[23] NSF required that he submit certifications and assurances for two years, and barred him from serving as an NSF reviewer, advisor, or consultant for two years.
- In the case of a PI who copied a portion of another scholar's research goals into a declined NSF proposal and copied a substantive portion of the methodology into another declined NSF proposal,[24] NSF required that the PI submit certifications and assurances for two years, and certify compliance with requirements imposed by his university.
- NSF required a PI who plagiarized material in an NSF proposal[25] to submit certifications and assurances for two years, and barred him from serving as a reviewer, advisor, or consultant for two years.
- In the case of a PI who plagiarized material in a proposal for a funded NSF award, which was suspended and subsequently closed while suspended,[26] NSF required the PI to submit certifications and assurances for three years and certify compliance with university-imposed requirements.
- NSF required that a graduate student who plagiarized text into an NSF grant's annual report[27] certify compliance with university-imposed requirements.
- NSF required a PI who plagiarized material in multiple NSF proposals[28] to submit certifications and assurances for one year, and barred him from serving as a reviewer, advisor, or consultant for two years.

20. March 2015 Semiannual Report, pp.27-28.
21. September 2015 Semiannual Report, p.31.
22. September 2015 Semiannual Report, p.29.
23. March 2015 Semiannual Report, p.30.
24. March 2016 Semiannual Report, p.27.
25. March 2015 Semiannual Report, p.30.
26. March 2015 Semiannual Report, pp.31-32; March 2016 Semiannual Report, pp.26-27.
27. September 2015 Semiannual Report, p.30.
28. September 2015 Semiannual Report, p.30.

CHALLENGE: Establishing Accountability over Large Cooperative Agreements

Overview: Since 2010, OIG has issued 28 reports containing more than 80 recommendations related to NSF's use and management of cooperative agreements for the construction and operation of high-dollar, high-risk research facilities. Audits of over $1.1 billion in proposed costs for three construction projects raised serious questions about the adequacy of the proposed budgets, which led us to examine NSF's cost surveillance throughout the lifecycle of large facility projects.

Accountability weaknesses occurred at multiple facilities and contributed to the decision by the NSF Director and the National Science Board to procure a report by the National Academy of Public Administration (NAPA) focused on NSF'S large cooperative agreements. NAPA determined that NSF should strengthen oversight and monitoring of cooperative agreements to ensure that the billions of Federal funds invested in large facilities are spent properly. The NAPA report included thirteen recommendations, which if implemented by NSF in a timely manner, will significantly improve NSF's ability to ensure accountability over high-dollar, high-risk projects and thus will go a long way toward addressing many of the issues OIG has raised.

Challenge for the Agency: NSF's challenges with large facility construction agreements go beyond ensuring that proposed budgets and expenditures are supported. Our extensive audit work focused on construction awards surfaced similar risks for NSF's oversight of operations awards for large facilities. This is important because NSF spends significantly more for operating its facilities than constructing them. For example, NSF requested over $193 million for fiscal year 2017 to pay for four NSF construction projects. In contrast, NSF's operation and maintenance request for its existing facilities and Federally Funded Research and Development Centers for the same time period was over $947 million.

NSF's challenge to ensure accountability in large facility cooperative agreements is compounded by the Foundation's emphasis on scientific results at the expense of sound business practices. This issue was noted in the NAPA report, which stated that:

> It is clear that, in the past, NSF has prioritized the innovative scientific aspects of large facility construction projects; the agency now needs to apply equal emphasis on increased internal management of the business practices critical to enhanced oversight and project success. In doing so, the Panel believes that NSF and NSB will enhance the agency's ability to fulfill its mission of supporting groundbreaking science.[29]

29. National Science Foundation: Use of Cooperative Agreements to Support Large Scale Investment in Research, National Academy of Public Administration (December 2015), pp. 6-7.

Proper financial management and oversight can play a crucial role in ensuring that a project achieves intended scientific benefits. It is critical for NSF to have a sound and reliable estimate of project costs and then to ensure that project funds are spent appropriately. Absent such oversight there is a heightened risk that scientific benefits will be lessened. For example, NSF did not become aware of the NEON project's potential $80 million budget overrun until it was notified of it by NEON. While some of the factors that may have contributed to increased project costs, such as permitting delays, may have been outside of NSF's control, NSF could have addressed other matters such as unsupported costs in NEON's budget and questionable spending for meals and entertainment activities, among other things, if it had identified them earlier.

The Foundation's ability to monitor a project's progress is enhanced if it has access to quality Earned Value Management (EVM) data. We have recommended that NSF validate the information awardees provide in EVM reports and that NSF require that EVM systems be certified. There were problems with the EVM systems for two of NSF's largest, riskiest construction projects, which could increase the risk of cost overruns and misuse of funds. For example, NSF has not certified the EVM system for $344 million Daniel K. InouyeSolar Telescope project, and is not validating the EVM data provided by the awardee.

It is imperative that NSF apply the same rigorous attention and scrutiny to its financial management and oversight of its large facility projects that it applies to determining the scientific merit of the projects it decides to fund.

NSF management agreed with all of the NAPA report's recommendations and said that the agency plans to implement them "in some form". The agency has also agreed with a number of OIG recommendations. NSF now faces the challenge of implementing multiple new policy changes based on these recommendations, which will require obtaining an increased amount of data from its awardees. Implementing these new practices will also require sustained management attention, effective communication with the awardee community, clear award terms and conditions, and, most importantly, a culture change in NSF.

The Foundation applies its highest level of attention and scrutiny to determine the scientific merit of the projects it decides to fund. To ensure that these projects deliver the promised scientific benefits to the public, a culture change at NSF is needed that makes sound financial management a priority and ensures that sufficient resources are allocated to ensure that federal funds are spent properly. We remain concerned about NSF's ability to accomplish this change, and about its progress toward improving cost surveillance and implementing these new rules to ensure effective oversight.

OIG's Assessment of the Agency's Progress: NSF has developed new policies and procedures for large facility awards to address some OIG and NAPA recommendations. Examples of NSF's new requirements to strengthen oversight of large facilities include a Cost Proposal Review Document to document NSF's analysis of awardees' proposed costs, an independent cost assessment to validate proposed costs, an incurred cost

reporting tool for cooperative agreements over $100 million, retaining a portion of an awardee's contingency funding, and prohibiting use of management fee for certain activities.

NSF's actions represent important steps toward the goal of increased accountability; however, the agency continues to study how to address other recommendations, such as whether to require certification of Earned Value Management systems.

CHALLENGE: Management of NSF's Business Operations

Overview: NSF may be a small agency in terms of staff but it spent over $7 billion in FY 2016 to select and administer productive investments in research and the nation's science infrastructure. Consequently most of NSF's managers and staff are successful science or engineering professionals who are well qualified to help determine the composition of the agency's investments, but vary in terms of their managerial experience and skill.

Selecting and funding great science is the agency's most important job but with responsibility for billions of dollars and a diverse portfolio of projects, NSF leadership cannot afford to overlook the importance of its financial and administrative operations. Effective executives and administrators are as critical to NSF's success as its scientists. The "business" side of NSF faces a set of challenges aimed at improving the organizations' management controls over payments, information security, recordkeeping, and reporting. Simply stated, NSF is challenged to deliver both scientific and organizational excellence.

Challenge for the Agency:

Finding and Eliminating Improper Payments

Ensuring that payments are proper at the time they're initiated has always been challenging for NSF because grant recipients are generally not required to present supporting documentation in order to receive payments from the agency. As a result, NSF issues approximately $6 billion annually in grant and cooperative agreement payments relying almost completely on the *recipients* to ensure that only proper payments are requested, and that if improper payments are ever made, they will be identified and corrected by the recipient after the fact.

In May 2016, we issued a report on NSF's compliance with the Improper Payment Elimination Act (IPERA) requirements for FY 2015. Although we concluded that NSF technically complied with the requirements of IPERA, we identified substantial concerns with the depth, substance, and documentation of the NSF risk assessment. Specifically, we found significant limitations in NSF's analysis of six of the nine OMB risk factors and its assessment of NSF payments to employees.

With respect to the first concern, properly evaluating risks that could contribute to improper payments depends on collecting accurate, relevant information by asking the right questions of the appropriate personnel. We found that in some instances the interviews conducted did not address areas of known risks in sufficient detail, and at times raised concerns about why some questions were asked and others were not. We also found that NSF sometimes accepted answers at face value and did not obtain key information to support the information provided.

With respect to the second limitation, NSF did not thoroughly assess payments to employees. The agency did not conduct IPERA-specific testing on payroll in FY 2015 or interview NSF's Division of Human Resource Management (HRM), the division responsible for administering salary and benefits, to discuss any of the nine OMB risk factors during the IPERA risk assessment. As a result of these limitations, NSF's risk assessment may not have fully explored the agency's susceptibility to improper payments. We made eight recommendations to strengthen NSF's future IPERA risk assessments. NSF generally agreed with the recommendations, and plans to undertake corrective action to address the root causes of the finding.

The *Standards for Internal Control in the Federal Government* states that, "Internal control is a process effected by an entity's oversight body, management, and other personnel…" It further states that, "…management designs control activities so that all transactions are completely and accurately recorded." NSF's challenges in this area are to develop an internal control process that provides reasonable assurance that payments are proper at the time they are made, and to develop a sound process for assessing its risk of improper payments.

Protecting Agency Information and IT Resources

The protection of its information systems against unauthorized access or modification is critical to NSF's ability to carry out its mission. As demonstrated by the recent failure of the Uninterruptible Power Supply that shut down NSF's network for three days last July, access to agency information and IT resources is extremely dependent on external factors. With the agency scheduled to vacate its current buildings next year, the owner may not be as motivated to keep infrastructure updated. To compensate, NSF should increase the timing and robustness of IT resource testing until the time of the move to the new building in 2017.

After the move to the new building in 2017, NSF's challenge will be to ensure that agency information and IT resources remain available, secure, and complete. Its efforts in this area may be assisted by the use of information security continuous monitoring (ISCM) strategies as mandated by OMB through the DHS Continuous Diagnostic and Mitigation Program.

In addition to certain recurring IT security weaknesses, NSF has some long-standing issues that warrant increased attention, particularly with regard to the systems of its Antarctic Program. In particular, there are two deficiencies still outstanding that were first identified in 2006 that threaten the continuity of mission support and

communications from the USAP's key Denver location in the event the site becomes unavailable or the data center is interrupted. NSF management should allocate appropriate resources to correct these weaknesses and ensure that the systems and information are adequately protected.

Promoting Accountability and Transparency

The Digital Accountability and Transparency Act (DATA Act) directs the federal government to standardize and publish a wide variety of reports and data in order to foster greater transparency over federal spending. Federal agencies must implement and report the DATA Act data elements by May 2017. The DATA Act also includes oversight requirements for Inspectors General to assess the completeness, timeliness, quality, and accuracy of data submitted by the agencies; our first such review must be completed by November 2017. The government-wide implementation is being led by a joint team from the U.S. Department of the Treasury and the Office of Management and Budget (the DATA Act Project Management Office or PMO).

The iterative nature of the DATA Act PMO's implementation strategy and evolving federal guidance make it difficult for agencies, including NSF, to integrate the implementation effort into existing IT governance and resource requirements planning structures. Also, there are issues that still need to be resolved on a government-wide basis, including the late release of Treasury's production-ready broker (to test and validate agency data); and the software patches to the iTRAK financial system used by NSF and other agencies, both of which are beyond NSF's control. Further, NSF has indicated that it needs additional guidance and clarification from OMB and Treasury to fully report under the DATA Act.

Other factors also present a significant challenge for NSF in successfully implementing the requirements of the Act including: the necessary modifications to agency systems and processes; the limited agency FTEs available to ensure that adequate staff with the necessary skills and competencies are dedicated to DATA Act implementation; and the potential that NSF's relocation in 2017 may impact DATA Act activities. Also, the lack of a clear source of funding for NSF's DATA Act implementation efforts presents a potential risk to its success. As the guidance on DATA Act requirements is released in stages, cost estimates and implementation activities will continue to change, making it difficult for the agency to adequately prepare.

Managing the Government's Records

In 2011, President Obama signed a memorandum initiating a government-wide effort to reform federal recordkeeping in light of the dramatic increase in the amount of electronic information that the government manages. The Office of Management and Budget (OMB) and the National Archives and Records Administration (NARA) issued a follow-up directive in 2012, which required federal agencies to take specific actions by appointed dates to reform the policies and practices for the management of records, and provide a framework for the management of electronic records.

Although NSF has until 2019 to be in compliance with all of the directives issued by NARA, NSF plans to relocate to a new headquarters building in less than one year which will have less office space available for the storage of paper, supplies, and equipment. Accordingly, the agency must reduce the amount of paper, supplies and equipment it uses and stores. As a result, NSF has set a goal of disposing of 500,000 pounds of such material prior to moving to the new building.

Before the agency begins to reduce its paper files, it must guide staff to distinguish between *official* records and non-record materials and personal papers. NSF is required to retain and destroy official records in accordance with record retention schedules approved by NARA. With the upcoming relocation, employees will begin reviewing and purging their files and records and will require clear guidance to prevent the inadvertent disposal of official records. NSF prepared optional online records management training for employees and issued a September 2016 bulletin to help staff identify federal records. However, NSF does not require employees to take the training and has not encouraged employees to voluntarily take the online records training since the end of 2014. Without the training and guidance from NSF, employees are at risk of disposing official records.

In addition, NSF needs to 1) update its NARA record retention schedules to classify electronic records as official NSF records, and 2) review, scan, and digitize its paper records into an electronic format. The agency has a schedule to finish scanning and digitizing records within each directorate by May 2017, however schedule delays are already occurring due to directorates not being prepared to scan and digitize their records.

OIG's Assessment of the Agency's Progress: Although OIG found the agency in technical compliance with IPERA this past year, we remain concerned about NSF's approach to conducting IPERA risk assessments and will continue to engage in discussions on this issue. With regard to Information and IT Resources, the agency reports that it has initiated implementation of Phase 1 of Continuous Diagnostics Mitigation, and expects to be the first agency to complete it by the end of the year.

NSF has reported that it is on track to implement the DATA Act by the statutory May 2017 deadline. We agree that NSF had made progress towards implementing the DATA Act, including putting in place a governance structure, following government-wide guidance, implementing plans to mitigate the risk of delays in software patch releases, and participating on government-wide working groups. However, due to factors outside of NSF's control, and project management challenges caused by inadequate resources, meeting the May 2017 reporting deadline continues to be a challenge.

With respect to records management, NSF has hired a professional to head the Records Management Section. However, more needs to be done to prepare agency staff to meet the challenging records management goals it has set prior to the relocation of its headquarters.

CHALLENGE: Management of the IPA Program

Overview: To further the agency's mission of supporting science and engineering research and education, NSF draws on scientists, engineers, and educators on rotational assignment from academia, industry, or other eligible organizations. All of the non-permanent appointments are federal employees, except for Intergovernmental Personnel Act (IPA) assignments; individuals on IPA appointments remain employees of their home institutions.

As a result, IPAs' home institutions administer their pay and benefits, and IPAs are therefore not subject to federal pay and benefits limitations.

Challenge for the Agency: While there are benefits that come from having IPAs at NSF, there are also challenges. For example, since individuals can serve in a temporary capacity for up to four years, there is almost constant turnover in staff at NSF, especially in senior leadership positions. In July 2016, IPAs led five of NSF's seven science directorates and 22 (of 30) divisions. Thus, the majority of the positions responsible for providing leadership and direction to accomplish the agency's mission were help by temporary employees.

Relative to the number of permanent employees, NSF is a major user of IPA authority; IPAs comprised less than one percent of the workforce for five other science-centric federal agencies. In addition, IPAs at those agencies were generally used in research-related positions, such as science advisors, and did not typically fill management positions.

The IR/D program permits NSF staff, including IPAs, to engage in research projects while they are at NSF. IPAs participating in IR/D activities usually return to their home institution to continue existing research projects. Of 250 working days in a year, IR/D participants can spend up to 50 days (20 percent of their work time) on research at their home institutions. IPAs are more likely to participate in IR/D and to travel as part of their IR/D activities than permanent employees.

For example, for a one year period ending August 1, 2012, NSF spend nearly $1.3 million for travel to support IPA's IR/D activities compared with $183,631 for permanent employees. The amount of time IPAs spend at their home institutions rather than at NSF, raises questions about their ability to fulfill their responsibilities at NSF and to be fully engaged in the agency's mission.

Because IPAs remain employees of their home institutions while at NSF and expect to return there after their tenure at NSF, most come to the Foundation with known conflicts of interests. In light of the Foundation's reliance on rotators to make funding decisions, it is critical that strong controls be in place to identify and mitigate conflicts of interest that occur as a result of IPAs' own research activities or their connections with their home institutions. We are conducting an audit to evaluate the Foundation's controls over IPAs' conflicts of interest.

Finally, NSF's reliance on IPAs comes with a high cost. Both the number of IPAs and their cost have increased in the last three years. NSF has 29 percent more executive level IPAs in 2015 than in 2012, costing nearly $2.4 million more. NSF paid nearly $8.9 million for salary, fringe benefits, lost consulting, and per diem for 27 executive level IPAs in 2015 and $6.5 million for the same expenses for 21 executive level IPAs in 2012.

In addition, as noted previously, IPAs are not subject to federal pay and benefits limits. In 2012, the highest paid annual IPA salary was $301,247; in 2015, the highest paid annual IPA salary was $440,165. The average executive IPA salary also increased from $223,632 to $243, 571. Because IPA salaries and benefits are funded with program-related appropriations, savings in IPA costs would free up funds for additional research.

OIG's Assessment of the Agency's Progress: NSF established an IPA Steering Committee to analyze IPA costs and identify cost savings, among other things. NSF informed us that it continued to identify and manage conflicts of interest related to IPAs.

CHALLENGE: Moving NSF Headquarters to a New Building

Overview: NSF has four months (September through December 2017) to complete its move to the new headquarters and vacate the two buildings in Arlington before its current leases for the Arlington offices expire. During this time, NSF needs to relocate about 2,100 people; move furniture and IT equipment; and decommission its current buildings, with two of these tasks expected to take over one month. Prior to NSF's physical move, the agency must also ensure the new building is operational, with workstation furniture installed, functional IT systems, and operational conference rooms so employees can perform their work.

Challenge for the Agency: NSF is faced with significant challenges to completing the move to the new headquarters before leases on its existing buildings expire at the end of 2017. Because of prior delays, there is little margin for error and the risk of any additional delay is high – after the December 31, 2017 deadline, NSF will have to pay approximately $64,000 per day in rent for its new building. If NSF has not moved by the end of 2017, the General Services Administration will have to re-negotiate leases on its current buildings, which will likely result in increased rental costs the Foundation will have to pay at the same time it begins paying rent for its new headquarters.

To meet its move deadline and avoid additional costs, it is critical for NSF to have a complete and accurate baseline schedule, which plays a critical role in NSF's ability to identify and manage risk. The baseline schedule should be updated frequently and in a timely manner to reflect progress, identify delays, and determine the impact of delays on remaining activities. Although the baseline schedule includes both NSF and the contractor's activities, NSF is responsible for the schedule. We are currently examining NSF's baseline schedule to determine the robustness of this crucial tool.

The frequent turnover in personnel managing the move raises concerns about NSF's ability to meet deadlines and underscores the importance of the baseline schedule to track and measure progress. Since 2014 there have been five project managers overseeing the move. In January 2016, five months after the leases were renegotiated, NSF hired the first person dedicated to managing the schedule, and that person left the agency after one month. In March 2016, NSF hired another scheduler.

OIG's Assessment of the Agency's Progress: In the past year, NSF has made progress by successfully meeting its deadlines for reviewing the building designs in condensed timeframes. The agency also completed Phase II negotiations with the union without delaying the move and informed us that it plans to complete the third phase of negotiations without delaying the project schedule. NSF also said that in 2017 it plans to develop a detailed relocation plan and determine what furniture can be re-used in the new building.

CHALLENGE: Management of the U.S. Antarctic Program

Overview: NSF, through the United States Antarctic Program (USAP) manages U.S. scientific research in Antarctica. The Antarctic Support Contract (ASC) was awarded to Lockheed Martin in December 2011 and is NSF's largest contract, valued at nearly $2 billion over 13 years.

The Antarctic Support Contract and its subcontractors provide logistical support in a variety of areas, from laboratory management and food services, to information technology and other support functions that make NSF research possible in one of the most remote areas of the world.

In August 2016, Leidos Holdings, Inc. and Lockheed Martin's Information Systems & Global Solutions business segment merged. As a result of the merger, Leidos will hold the ASC, once plans for all contracts affected by the merger have been reviewed.

Challenges for the Agency: Ensuring a successful transition of the ASC project, together with its subcontractors, will be a challenge for NSF. It is essential for NSF to have strong cost controls, especially through reorganizations and mergers, to protect the government against unwarranted increases in ASC costs.

In addition to challenges related to the merger, NSF will also face the challenge of modernizing McMurdo and Palmer research stations. It is important for NSF to apply lessons learned through its large facility work as it proceeds with this new construction project.

NSF must also oversee costs incurred under the ASC and its subcontracts. In 2013 we examined the agency's oversight of medical expenses related to the Antarctic program. The Antarctic Support Contractor (ASC) and its subcontractors prepare, process, and pay as many as 1,600 individual reimbursement requests each year for costs related to medical screening. In the course of our audit which identified opportunities to reduce

costs for the medical screening process for Antarctic program participants, we found that guidance about what medical expenses would be reimbursed by the contractor was unclear. As a result, applicants may be submitting claims for expenses that are not eligible for reimbursement.

In addition, the contractor does not have a robust system to ensure the accuracy of invoices for medical costs. NSF should consider increasing its investment in the oversight of invoiced costs until it is better assured of the contractor's internal controls. The Contracting Officer's Representative told us that NSF cannot tell if it is being accurately invoiced by LM for medical processing costs and that NSF relies on the contractor to charge them accurately.

Although medical processing constitutes approximately $1 million out of the first full year's contract value of $173 million, weak internal controls over relatively small costs for medical processing raises questions about sufficiency of controls over larger contractor costs. NSF could consider increasing its investment in the oversight of invoiced costs until it is better assured of LM's internal controls over invoicing accuracy.

NSF has three sites – Port Hueneme, California; Punta Arenas, Chile; and Christchurch, New Zealand – where inventory is stored and maintained prior to shipment to Antarctica. The Port Hueneme facility alone handles approximately 40 million pounds of cargo each year. Inventory stored at these sites is at particular risk due to the large volume of material, long logistical lead time, and remoteness from the USAP program headquarters.

OIG's Assessment of the Agency's Progress: NSF reported that it has addressed infrastructure upgrades for McMurdo station through continued design efforts. For example, NSF stated that it has initiated design efforts for upgrades to McMurdo lodging, vehicle equipment/operations center, and the Palmer Pier replacement.

In addition, NSF stated that it continued to review and approve invoices to the USAP contractor and that it documented this process in 2013. The agency reported that it will continue to monitor invoices from the USAP contractor in accordance with its established procedures.

CHALLENGE: Improving Grant Administration

Overview: Making grants in support of promising scientific research is NSF's primary business. In FY 2015, NSF evaluated over 49,600 proposals for research, education and training projects through a competitive review process, and funded over 12,000 new competitive awards. As of June 30, 2016, NSF had a portfolio of over 42,000 active awards totaling approximately $28.2 billion to over 2800 awardees. Given the size and exposure to risk that its portfolio represents, it is vital that NSF's grant administration practices ensure that grantees spend their funds appropriately.

Challenge for the Agency: Ensuring that grant funds are spent as intended has always been challenging because grant recipients are not required to produce supporting documentation, such as invoices and receipts, in order to receive payment from the agency. While recent efforts to reduce the administrative burden on grantees have value, the agency should proceed carefully so that accountability for public funds is not compromised in the process. Issues with accountability and transparency are further compounded due to the need for NSF to monitor awardees that "pass-through" funds to sub-recipients that perform a significant amount of the work. Therefore, the challenge for NSF is to implement controls over the spending of grant funds that ensure transparency and accountability, but do not unduly encumber awardees and federal program officers.

OMB issued its streamlined guidance, 2 CFR Part 200, "Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards" (Uniform Grant Guidance or UGG), in December 2013. NSF's *Proposal & Award Policies & Procedures Guide* to implement the UGG became effective in December 2014. Also, as noted in prior years' Management Challenges, OMB raised the single audit threshold from $500,000 to $750,000, effectively removing audit coverage on millions of dollars in NSF funding. While the new guidance and higher audit threshold potentially increases exposure to risk, NSF's monitoring program continues to focus on awardees receiving between $2 million and $15 million in NSF funds. This focus does not take the additional steps needed to oversee the NSF awards to recipients who fall below the new threshold.

Transparency and oversight of NSF funds passed through to sub-recipients poses a challenge to NSF's grant administration. NSF's large facility construction awards include significant amounts of funding that goes to sub-recipients. It is NSF's responsibility to make sure that prime recipients are properly overseeing sub-recipients. Recent audits have shown that NSF lacks the necessary information and visibility over sub-recipients to ensure that they are following federal requirements. Additionally, OIG audits found that some sub-recipients have provided incomplete information in their incurred cost submissions. These submissions are intended to ensure that the costs charged the government are fair and allowable, providing needed visibility over how money is spent. NSF is challenged to require its awardees to provide sufficient cost information to demonstrate that sub-recipients' costs are allowable, as well as fair and reasonable. Without this information, NSF risks over paying or paying costs that are not allowed by federal requirements.

OIG's Assessment of the Agency's Progress: NSF continued to take actions this past year to strengthen grant administration. As previously noted, the agency's revised *Proposal & Award Policies & Procedures Guide*, implementing the UGG, became effective in December 2014. In October 2016, OIG will transfer responsibility for identifying single audit findings that require NSF resolution to NSF. NSF reported that it had implemented statistically based baseline award monitoring of financial transactions to uncover anomalies and inaccurate payments. Finally, NSF continues to use its Award Monitoring and Business Assistance Program (AMBAP), which includes baseline and advanced monitoring activities, to ensure awardee compliance with the revised

guidance. During advanced monitoring, NSF assesses the internal controls of its awardees to ensure adequate administration of the NSF awards. During FY 2016, NSF planned and completed 28 Advanced Monitoring Site Visit reviews and 64 desk reviews.

CHALLENGE: Encouraging the Ethical Conduct of Research

Overview: Congress passed the America COMPETES Act in 2007 to increase innovation through research and development, and to improve the competitiveness of the United States in the world economy. NSF responded to the Act by mandating mentoring plans for all postdoctoral positions and directing that grantees provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate and graduate students, and postdoctoral researchers participating in the proposed research project.

NSF requires that institutions submitting a proposal to certify that they provide RCR training and oversight. However, information collected during investigations, site visits, and reviews of institutional Responsible Conduct of Research (RCR) plans suggests that some institutions have not adopted an effective approach to RCR training. Furthermore, some research suggests that many of the ethics training programs currently available do little to change the perspectives of students and postdocs regarding the ethical conduct of research. As more stories about research misconduct circulate in the media, the public's confidence in the research community as a whole is weakened and taxpayer support of science is undermined. NSF is therefore challenged to provide more oversight to institutional implementation of these requirements and to provide meaningful guidance regarding RCR training.

Challenge for the Agency: NSF's primary challenge is to ensure that awardees implement effective RCR programs. At a time when opinion surveys indicate more Americans are becoming distrustful of science, it is important that key science agencies such as NSF do all it can to promote a more ethical culture within the research community, and thereby minimize instances of misrepresentation or cheating. Surveys also suggest that cheating is endemic at various levels of education, with 30% of researchers admitting to engaging in questionable research practices or knowing someone who has engaged in such practices.

The significant number of substantiated allegations of research misconduct investigated by OIG continues unabated. Particularly concerning is the increase in allegations of data fabrication/falsification by students/post-docs. From 2004-2010 our office received 21 such allegations; from 2011-present we received 49 such allegations, an increase of over 100%. In addition, OIG has seen a substantial increase of allegations related to violations of NSF peer review confidentiality, false representations in CVs, false representations of publications in annual/final reports, false or incomplete listing of all affiliations and current support (especially at overseas institutions), and fraudulent

or otherwise improper use of grant funds. The number and variety of ethical issues identified in our investigative activities suggest that institutions have not sufficiently emphasized research integrity as a core value – not only at the student level, but at the faculty level as well.

The NSF Act places responsibility on NSF to strengthen scientific and engineering research potential. NSF funds research in virtually every non-medical research discipline and reaches a vast range of educational levels, kindergarten through post-PhD. The agency is therefore in a unique position to lead the government response to these disturbing trends in the responsible conduct of research and foster positive change at all levels of education. NSF's research and training programs reach individuals who are ultimately employed throughout the research community – in academia, industry, and government.

Effective RCR training of the science, engineering, and education workforce will pay substantial dividends. Early educational intervention remains critical to any effort to ensure that future scientists understand proper professional practices and the implications of failing to follow them. While NSF has been responsive to our recommendations contained in individual research misconduct investigation reports, such corrective actions only address incidents after the fact. Broader proactive measures are needed.

OIG's Assessment of the Agency's Progress: The agency responded to the America COMPETES Act by requiring that grantees provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate and graduate students, and postdoctoral researchers who are financially supported by proposed NSF-funded research projects. However, in contrast to the RCR requirements adopted by NIH in 2010, those implemented by NSF do not have specific course requirements. Nor do they provide guidance about the content, structure, or format of the courses.

Other initiatives the agency has undertaken include the development of a new ethics research program called Cultivating Cultures for Ethical Science Technology Engineering Mathematics (CCE STEM). The CCE STEM research effort is focused on identification of factors that create cultures that foster and encourage research integrity, rather than on curriculum development on integrity issues. In February of 2016, NSF upgraded its Online Ethics Center to provide resources to institutions and researchers aimed at helping them navigate ethical issues. The Agency also worked with the National Academies to develop and make available ethics materials that will be applicable across all scientific fields that NSF supports.

OIG is completing a review of institutional responses to NSF's implementation of the America COMPETES Act.

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		$11,714,680
B.	Recommendations that were issued during the reporting period		$0
C.	Adjustments related to prior recommendations		$0
Subtotal of A+B+C			$11,714,680
D.	For which a management decision was made during the reporting period		$0
	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	$0
E.	For which no management decision had been made by the end of the reporting period		$11,714.680
For which no management decision was made within 6 months of issuance			$11,714,680

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	21	$12,619,665	$2,677,036
B.	That were issued during the reporting period	11	$6,520,102	$406,724
C.	Adjustment related to prior recommendations	0	$0	$0
Subtotal of A+B+C			**$19,139,767**	**$3,083,760**
D.	For which a management decision was made during the reporting period	12	$1,723,797	$33,580
	dollar value of disallowed costs dollar value of costs not disallowed	N/A N/A	$245,928 $1,477,869	N/A N/A
E.	For which no management decision had been made by the end of the reporting period	20	$17,415,970	$3,050,180
For which no management decision was made within 6 months of issuance		**13**	**$11,014,427**	**$2,671,169**

Status of Recommendations that Involve Internal NSF Management Operations

Open Recommendations (as of 03/31/2016)	
Recommendations Open at the Beginning of the Reporting Period	149[30]
New Recommendations Made During Reporting Period	17
Total Recommendations to be Addressed	166
Management Resolution of Recommendations[31]	
Awaiting Resolution	25
Resolved Consistent With OIG Recommendations	124
Management Decision That No Action is Required	**0**
Final Action on OIG Recommendations[32]	
Final Action Completed	20
Recommendations Open at End of Period (09/30/2016)	**146**

Aging of Open Recommendations

Awaiting Management Resolution:	
0 through 6 months	6
7 through 12 months	8
More than 12 months	11
Awaiting Final Action After Resolution:	
0 through 6 months	14
7 through 12 months	55
More than 12 months	52

30. The closing balance on March 31, 2016 was 150. However, one recommendation on Report No. 14-3-002 was recorded twice. The closing balance should have been 149.
31. "Management Resolution" occurs when the OIG and NSF management agree on the corrective action plan that will be implemented in response to the audit recommendation.
32. "Final Action" occurs when management has completed all actions it agreed to in the corrective action plan.

OIG and CPA-Performed Reviews[33]

Report Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds
16-1-019	AURA Review of Management Fees	$0	$0	$0
16-1-020	NEON, Review of Management Fees	$0	$0	$0
16-1-021	Columbia University	$1,201,755	$15,258	$0
16-1-022	Georgetown University	$110,547	$22,165	$0
16-1-023	University of Michigan	$2,710,238	$363,543	$0
16-3-005	NSF's Compliance with IPERA	$0	$0	$0
16-3-006	Report on NSF's Covered Systems under 2015 Cybersecurity Act	$0	$0	$0
16-6-006	COL Incurred Cost FYs 10-11 Routine Activity	$76,905	$0	$0
16-6-007	AUI Incurred Cost FYs 08-10 Routine Activity	$1,412,600	$0	$0
16-6-008	NSF's Negotiation, Award and Management of Management Fees	$0	$0	$0
16-7-001	Peer Review of PBGC OIG	$0	$0	$0
16-7-002	IQCR of (#15-2-008) Travel Card Audit	$0	$0	$0
16-7-003	IQCR of 16-2-001 & 16-2-004	$0	$0	$0
	Total:	**$5,512,045**	**$400,966**	**$0**

33. The Office issued 13 reports this semiannual period.

NSF-Cognizant Reports

Report Number	Subject	Questioned Costs	Unsupported Costs
16-4-047	6-15 Cary Institute of Ecosystem Studies, Inc. - NY	$0	$0
16-4-048	12-14 Center for Severe Weather Research - CO	$0	$0
16-4-049	6-15 Computing Research Association, Inc. - DC	$0	$0
16-4-050	6-15 Bishop Museum and Related Entity - HI	$0	$0
16-4-051	6-15 Friends of the North Carolina State Museum of Natural Sciences - NC	$0	$0
16-4-052	9-15 NEON National Ecological Observatory Network - CO	$962,298	$0
16-4-053	6-15 CBIA Education Foundation - CT	$0	$0
16-4-054	9-15 Teachers Development Group - OR	$0	$0
16-4-055	8-15 Association of American Geographers - DC	$0	$0
16-4-056	6-15 IUP Research Institute - PA	$0	$0
16-4-057	6-15 QEMN Quality Education for Minorities Network - DC	$0	$0
16-4-058	6-15 Pacific Northwest Gigapop - WA	$0	$0
16-4-059	6-15 New York Botanical Garden - NY	$328	$0
16-4-060	6-15 American Museum of Natural History - NY	$0	$0
16-4-061	6-15 Institute for Advanced Study - NJ	$0	$0
16-4-062	6-15 MPC Corporation - PA	$0	$0
16-4-063	6-16 Techbridge - CA	$0	$0
16-4-064	9-15 AUI Associated Universities, Inc. - DC	$0	$0
16-4-065	9-15 COL Consortium for Ocean Leadership - DC	$0	$0
16-4-066	6-15 Exploratorium - CA	$0	$0
16-4-067	12-14 Las Cumbres Observatory Global Telescope Network, Inc. - CA	$0	$0
16-4-068	9-15 California Institute of Technology - CA	$0	$0
16-4-069	8-15 Open Network Laboratory - CA	$0	$0
16-4-070	9-15 Museum of Science, Inc. & Museum of Science Endowment Fund - FL	$0	$0
16-4-071	9-15 Pacific Resources for Education and Learning - HI	$0	$0
16-4-072	9-15 Business-Higher Education Forum - DC	$0	$0
16-4-073	12-15 Samuel Roberts Noble Foundation, Inc. OK	$0	$0
16-4-074	12-15 Institute for Broadening Participation - ME	$0	$0
16-4-075	12-15 Mathematical Association of America - DC	$0	$0
16-4-076	12-15 Missouri Botanical Garden - MO	$0	$0
	Total:	**$962,626**	**$0**

Other Federal Reports

Report Number	Subject	Questioned Costs	Unsupported Costs
16-5-042	6-15 Paine College - GA	$1,812	$0
16-5-046	8-15 State of Texas	$652	$0
16-5-062	6-15 State of Connecticut	$5,548	$5,548
16-5-081	9-15 J. F. Drake State Community & Technical College - AL	$37,419	$210
	Total:	**$45,431**	**$5,758**

Audit Reports with Outstanding Management Decisions

This section identifies audit reports involving questioned 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 14 reports remaining that met this condition. The status of recommendations that involve internal NSF management is described on page 40.

Report Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds
09-1-014	University of Michigan	$1,604,713	$1,418,889	$0
13-1-002	Jackson State University[34]	$943,475	$844,241	$0
13-1-004	ARRA Cornell University	$794,221	$19,703	
14-1-005	Audit of AURA Cost Book Evaluation for the Rebaselined ATST/DKIST Project	$0	0	$11,714,680
15-1-012	University of California, Berkeley	$1,863,351	$4,000	$0
15-1-014	ARRA University of Wisconsin - Madison	$1,669,588	$0	$0
15-1-020	Stanford University	$337,377	$0	$0
15-5-094	9-14 J. F. Drake State Community & Technical College - AL[35]	$15,846	$15,846	$0
16-1-004	University of Washington (ARRA)	$2,003,109	$12,868	$0
16-1-005	BAH Booz, Allen, and Hamilton Incurred Costs for FY ending 3-31-2008	$466,446	$217,935	$0
16-1-013	BAH FY 2009 Incurred Cost Audit Oversight	$1,171,673	$0	$0
16-5-009	9-14 Yukon River Inter-Tribal Watershed Council	$137, 687	$137,687	$0
16-5-024	6-15 Northeast Wisconsin Technical College - WI	$5,745	$0	$0
16-5-032	6-15 The Corporation of Haverford College - PA	$1,196	$0	$0
	Total:	**$11,014,427**	**$2,671,169**	**$11,714,680**

34. This report is on hold at the request of OIG.
35. This report is on hold at the request of OIG.

Investigations Data

(April 1, 2016 - September 30, 2016)

Investigative Activities

Referrals to Prosecutors	4
Criminal Convictions/Pleas	1
Arrests	0
Civil Settlements	4
Indictments/Information	0
Investigative Recoveries	$2,021,488.31
Referrals to NSF Management for Action	33
Research Misconduct Findings	7
Suspensions/Debarments/Exclusions	17
Administrative Actions taken by NSF	54
Certifications and Assurances Received[36]	31

Case Statistics

	Preliminary	*Investigations*
Active at Beginning of Period	3	230
Opened	5	51
Closed	6	46
Active at End of Period	2	235

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 13
- Requests Processed 15
- Appeals Received 2
- Appeals Granted 2[37]

Response times ranged between 1 day and 30 days, with the median around 17 days and the average around 16.5 days.

36. 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.
37. In both cases, the appeal was granted in part, denied in part.

NATIONAL SCIENCE FOUNDATION
OFFICE OF INSPECTOR GENERAL
4201 WILSON BOULEVARD, SUITE 1135
ARLINGTON, VIRGINIA 22230
703.292.7100

https://www.nsf.gov/oig

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