

About the National Science Foundation

The National Science Foundation (NSF) is an independent Federal agency created by Congress in 1950 “to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense....” NSF leadership has two major components: a director who oversees NSF staff and management responsible for program creation and administration, merit review, planning, budget, and day-to-day operations; and a 24-member National Science Board (NSB) to establish the overall policies of the foundation.

With a budget of approximately \$7.8 billion (Fiscal Year 2018), NSF is the funding source for approximately 24 percent of all federally supported basic research conducted by America’s colleges and universities. Each year, NSF supports an average of about 200,000 scientists, engineers, educators, and students at universities, laboratories, and field sites throughout the United States and the world.

About the NSF Office of Inspector General

The NSF Office of Inspector General (OIG) promotes effectiveness, efficiency, and economy in administering the Foundation’s programs; detects and prevents fraud, waste, and abuse within NSF or by individuals that receive NSF funding; and identifies and helps to resolve cases of research misconduct. OIG was established in 1989, in compliance with the *Inspector General Act of 1978*, as amended. Because the Inspector General reports directly to the NSB and Congress, the Office is organizationally independent from the Foundation.

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From the Inspector General

I am pleased to present our semiannual report, which summarizes the work and accomplishments of our office during the first half of fiscal year 2019.

Our work continues to reflect our commitment to helping NSF be an effective steward of taxpayer dollars. For example, during this reporting period our investigations led to the recovery of more than \$4.5 million, including funds returned to NSF, restitution, fees, and funds put to better use. Additionally, audits of incurred costs at five universities resulted in questioned costs totaling nearly \$983 thousand.

Equally important, our oversight work promotes effectiveness, efficiency, and integrity in NSF programs and grants. For example, this period, we reported on the National Science Board's compliance with the *Government in the Sunshine Act* and NSF's controls to prevent inappropriate use of electronic devices. We also initiated nine investigations of alleged research misconduct.

Notably, during this reporting period, the Court of Appeals upheld the convictions and sentences of two scientists involved in a scheme to defraud the Small Business Innovation Research / Small Business Technology Transfer programs. The husband and wife defendants were sentenced to 15 and 13 years in prison respectively and ordered to pay restitution equal to the total amount awarded—more than \$10.5 million—for wire fraud, conspiracy to commit wire fraud, aggravated identify theft, and falsification of records.

We appreciate the support of NSF management and staff from across the Foundation and look forward to our continued partnership with NSF, the National Science Board, and Congress to fulfill our mission. We also look forward to continuing our work with the Council of the Inspectors General on Integrity and Efficiency on important issues that cut across our government in the years to come.

A handwritten signature in cursive script that reads "Allison Lerner".

Audits and Reviews

The Office of Audits is responsible for auditing grants, contracts, and cooperative agreements funded by the Foundation. We also review NSF programs and operations to ensure that financial, administrative, and programmatic aspects of NSF operations are conducted economically, effectively, and efficiently. By providing independent and objective assessments of NSF's program and financial performance, we help NSF improve its business policies and practices to better support its mission.

Performance Audits

AUDIT OF NSF'S CONTROLS TO PREVENT INAPPROPRIATE USE OF ELECTRONIC DEVICES

We found that NSF could improve its controls to detect, deter, and remedy inappropriate use of its electronic devices. Specifically, NSF did not always 1) ensure its mobile phones and tablet computers are properly enrolled in mobile device management software, 2) prevent users from installing inappropriate applications on its mobile devices, 3) ensure an ongoing business need exists for mobile devices, or 4) review reports identifying excessive attempts to access inappropriate websites. As a result, NSF may be missing opportunities to prevent and remedy inappropriate use of its information technology (IT) resources. Additionally, NSF may be paying for mobile communication devices that are no longer needed or services beyond the business needs of its users.

We recommended NSF provide additional guidance on applications necessary to conduct agency business; develop a policy for the quarterly application review process; implement a mechanism to ensure all NSF-owned devices are enrolled in a mobile device management service; develop an enforcement mechanism to ensure the annual mobile device recertification process is completed; annually educate users on acceptable mobile device use and the consequences of personal and inappropriate use; and develop and implement a procedure to periodically obtain web filter reports and identify individuals who are repeatedly triggering the filter. NSF agreed with our recommendations.

NATIONAL SCIENCE BOARD IMPROVED ITS COMPLIANCE WITH THE GOVERNMENT IN THE SUNSHINE ACT

The *America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act*¹ of 2007 requires us to conduct a triennial audit of the National Science Board's (NSB) compliance with the *Government in the Sunshine Act*.² Compliance with the Sunshine Act is essential to ensure the public has the opportunity to fully understand an agency's decision-making process.

The NSB's closures of meetings were generally consistent with the exemptions in the Sunshine Act, and the NSB generally complied with the Act's procedural requirements. The NSB and National Science Board Office (NSBO) improved compliance with the closure and procedural requirements in the Sunshine Act since our last audit in 2016. For

¹ Pub. L. No. 110-69

² Pub. L. No. 94-409

example, the NSBO improved the timeliness of its posting of NSB's votes to close meetings and public meeting agendas on its website, and the NSB refrained from discussing non-exempt congressional matters in closed sessions and increased the transparency of its agenda topics.

The NSB could further open its deliberations or increase transparency by clarifying retreat agendas, holding more discussions in open meetings, and providing more context for "Director's Remarks" on NSB plenary or plenary executive meeting agendas. Additionally, the NSB could ensure contractors fully transcribe closed meetings, executive secretaries include all required elements in their presiding officer statements, and the NSB votes to change agenda topics as required by the Act. The NSB and the NSBO concurred with our findings and recommendations and will develop an action plan to address our recommendations.

AUDIT OF NSF'S INFORMATION SECURITY PROGRAM FOR FY 2018

NSF depends on computerized information systems to process, maintain, and report essential information. Reliability of computerized data and systems is essential, and protecting information systems continues to be a challenge for NSF. NSF has taken corrective actions in response to IT recommendations in prior periods. However, as reported in an FY 2018 audit³ required by the *Federal Information Security Modernization Act of 2014*⁴ (FISMA), NSF continues to have IT security challenges.

Kearney & Company (Kearney), under a contract with OIG, performed the FY 2018 FISMA audit. It determined that although NSF has an established information security program and has implemented appropriate corrective actions to address all three findings in the FY 2017 FISMA report, additional work is needed to address shortfalls in select IT security controls. Kearney identified two new findings in the areas of "Identify and Access Management" and "Data Protection and Privacy." Kearney made five recommendations to improve NSF's IT Security Program. NSF subsequently provided a corrective action plan that, if implemented, should address the recommendations.

Following the issuance of the FY 2018 FISMA report, we closed the five recommendations in the FY 2017 report. Thus, the only FISMA recommendations currently open are the five in the FY 2018 report.

FY 2018 FINANCIAL STATEMENT AUDIT RESULTS IN UNMODIFIED OPINION

NSF is required to prepare annual financial statements, which must be audited by an independent entity and are consolidated into the Government-wide financial report. Kearney, under a contract with OIG, audited NSF's FY 2018 financial statements. It issued an unmodified opinion on the financial statements as of and for the years ended September 30, 2018 and 2017. Kearney identified no instances of noncompliance or other matters that are required to be reported under *Generally Accepted Government Auditing Standards* (GAGAS). The FY 2018 audit had no recommendations, so there are no open recommendations for NSF's financial statements audits. However, in performing the FY

³ OIG 19-2-002, *Performance Audit of the National Science Foundation's Information Security Program for FY 2018*, December 13, 2018

⁴ Pub. L. No. 113-283

2018 audit, Kearney noted matters involving internal control over financial reporting, which did not rise to the level of a significant deficiency. It reported these matters to NSF in a separate management letter. The auditors will review the status of these matters as part of the FY 2019 audit.

GOVERNMENT CHARGE CARDS – ANNUAL REPORT TO OMB ON NSF’S PROGRESS IN IMPLEMENTING AUDIT RECOMMENDATIONS

Pursuant to the *Government Charge Card Abuse Prevention Act of 2012*⁵ and Office of Management and Budget (OMB) Memorandum 13-21, IGs are required to report to OMB the agency's progress in implementing audit recommendations related to Government charge cards. We reported that, as of September 30, 2018, there were no outstanding audit recommendations for purchase cards or travel cards for the Foundation. We issued our last purchase card audit report in January 2014 and our last travel card audit report in August 2015. In addition, we advised OMB that we were not submitting a semi-annual Joint Purchase Card Violation Report because NSF's FY 2018 total purchase card activity was less than the \$10 million reporting threshold.

Audits of NSF Awardees

FIVE AUDITS RESULT IN NEARLY \$983,000 OF QUESTIONED COSTS

OIG contractors completed audits of five NSF awardees that expended more than \$535 million of NSF funds during the respective audit periods. The audits assessed the allowability, allocability, and reasonableness of costs charged to NSF and resulted in nearly \$983,000 of questioned costs. The auditors recommended that NSF recover the questioned amounts from Northwestern University (\$51,461); University of Wyoming (\$441,683); Colorado State University (\$19,365); Princeton University (\$436,021); and University of Tennessee Knoxville (\$34,094). The auditors also recommended that the awardees strengthen controls over the areas that led to the questioned costs. The findings included questioned equipment, travel, salary, and participant support costs; purchases near or after the end date of the award; and inappropriately allocated indirect costs.

Audit Resolution

RESOLUTION OF AUDITS OF NSF AWARDEES

Six previous audits of awardees were resolved this period. NSF sustained the following amounts of questioned costs in the respective audit reports: \$64,816 for the University of Southern California;⁶ \$17,134 for the University of Arizona;⁷ \$173,655 for the University

⁵ Pub. L. No. 112-194

⁶ OIG 17-1-009, September 29, 2017

⁷ OIG 17-1-010, October 3, 2017

of Kansas Center for Research, Inc;⁸ \$17,279 for Tufts University;⁹ \$20,109 for the University of New Mexico;¹⁰ and \$39,728 for Purdue University.¹¹

RESOLUTION OF AUDITS OF CONTRACT FOR U.S. ANTARCTIC PROGRAM SUPPORT

On October 25, 2018, NSF closed its 13-year, \$1.9 billion contract with Raytheon Technical Services Company, LLC (Raytheon) for science, operations, and maintenance support of the United States Antarctic Program. The Defense Contract Audit Agency audited FYs 2000-2004 of the contract for OIG and had questioned a total of about \$56 million. Although all questioned costs have been resolved previously, we were unable to close out four recommendations from those audits (OIG 06-1-001, 07-1-006, and 07-1-017) until NSF approved final amounts of direct and indirect costs for those years and closed out the contract. Once contract closeout occurred, the FYs 2000-2004 recommendations were no longer applicable and were also closed.

NSF STRENGTHENED ITS OVERSIGHT OVER MAJOR FACILITY AGREEMENTS

We closed the final recommendation for an alert memo that identified weaknesses in NSF's oversight over major facility construction agreements. NSF developed additional policies and procedures in response to the memorandum, including requiring an independent cost estimate of construction proposals and requiring award recipients to submit annual incurred cost submissions. NSF's Business and Operations Advisory Committee reviewed NSF's strengthened cost surveillance policies and procedures and deemed them sufficient.

NSF STRENGTHENED CONTROLS TO IDENTIFY AND MITIGATE IPA CONFLICTS OF INTEREST

Our June 2017 audit recommended that NSF take corrective actions to strengthen controls over conflicts of interest of temporary staff appointed under the *Intergovernmental Personnel Act*¹² (IPA). Individuals hired under the IPA — hereafter referred to as IPAs — can have a heightened risk of conflicts of interest while they are working at NSF.

In response to our recommendations, NSF polled its conflict officials to ensure they understand how to remove program officers conflicted with a proposal, developed additional guidance around an IPA's submission of continuation proposals while at NSF, and established an electronic system to ensure IPAs attend exit interviews that explain post-employment restrictions. Although NSF provided additional guidance around an IPA's submission of preliminary proposals, we believed the guidance could have been clearer to ensure NSF conflict of interest officials respond consistently to IPA questions regarding submitting preliminary proposals. NSF decided to accept the risk that decisions regarding the approval of preliminary IPA proposals may not always be consistent. As of October 2018, all recommendations associated with this audit report were closed.

⁸ OIG 18-1-001, October 19, 2017

⁹ OIG 18-1-008, September 26, 2018

¹⁰ OIG 18-1-004, August 22, 2018

¹¹ OIG 17-1-003, March 20, 2017

¹² Pub. L. No. 91-648

Reviews of Single Audits

QUALITY OF SINGLE AUDITS DECREASED FROM PRIOR PERIOD

Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance)¹³ provides audit requirements for state and local governments, colleges and universities, and non-profit organizations receiving Federal awards. Under the guidance, covered entities that expend \$750,000 or more a year 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. We review the resulting audit reporting packages (comprised of the auditors' report and the Data Collection Form) to ensure that they comply with the requirements of the Uniform Guidance and applicable Government and non-Government auditing standards.

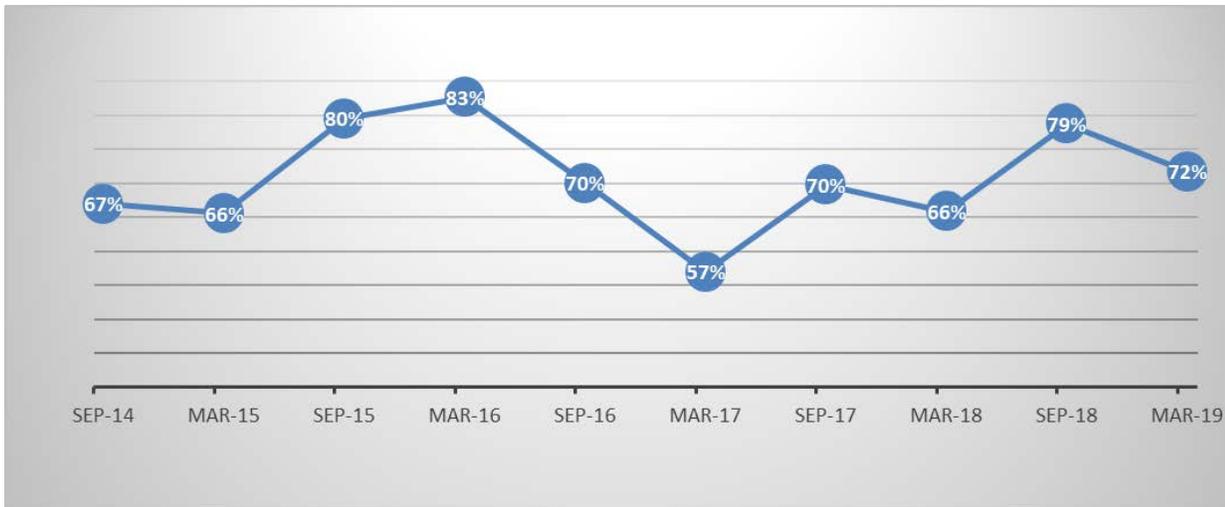
Single Audit reports are useful to NSF in planning advanced monitoring site visits and other post-award monitoring efforts. Because of the importance of Single Audit reports to this oversight process, we conduct desk reviews on all reporting packages for which NSF is the cognizant or oversight agency for audit. A desk review consists of reviewing the audit reporting package, but not the underlying auditors' audit documentation, to determine whether the reporting package meets Uniform Guidance, Generally Accepted Government Auditing Standards (GAGAS), and auditing standards issued by the American Institute of Certified Public Accountants (AICPA). We provide the results of our reviews to awardees and auditors along with guidance to improve audit quality in future reporting packages. In addition, we return to the awardees reporting packages that are deemed inadequate, so the awardees can work with the audit firms to take corrective action.

During this period, we conducted desk reviews of 53 audit reporting packages,¹⁴ covering nearly \$1 billion in total Federal expenditures, including more than \$517 million in NSF direct expenditures. As shown in Figure 1, we found that 38 (72 percent) fully met Federal reporting requirements. This represents a decrease in quality from the last semiannual period (ending September 30, 2018), when 79 percent of reports fully met Federal reporting requirements.

¹³ 2 CFR Pt. 200

¹⁴ The audits were conducted by 42 different independent public accounting firms.

FIGURE 1. PERCENTAGE OF SINGLE AUDITS THAT MET FEDERAL REPORTING REQUIREMENTS



Source: NSF OIG Semiannual Reports

Regarding the 15 audit reporting packages (28 percent) this period that did not fully meet Federal reporting requirements, we found that:

- 10 reporting packages were submitted to the Federal Audit Clearinghouse with inaccurate Data Collection Forms;
- 5 reporting packages contained the Schedules of Expenditures of Federal Awards (SEFA) that did not include required information to allow for identification of awards received from or passed-through to other non-Federal entities and/or did not adequately describe the significant accounting policies used to prepare the schedule;
- 4 audit reports were not submitted to the Federal Audit Clearinghouse in a timely manner;
- 3 audit reports contained inaccurate or missing report language;
- 2 audit reports disclosed findings without all required elements;
- 2 audit reports contained inaccurate Summaries of Auditors' Results;
- 1 audit report failed to disclose a significant deficiency in internal control that the auditors had identified during the audit; and
- 1 audit report reflected the auditors' failure to identify a compliance requirement as direct and material to the program (and test for compliance with the requirement).

For errors that potentially impacted the reliability of the audit reporting packages, we contacted the auditors and awardees, as appropriate, for explanations of each of the potential errors. In most cases, the auditors and awardees provided adequate explanations and/or additional information to demonstrate compliance with Federal reporting requirements. However, in three instances, we rejected the audit reporting packages due to the significance of the quality deficiencies. After we completed our review of the reporting packages, we issued a letter to each auditor and awardee informing them of the results of our review and the specific issues on which they should work to improve the quality and reliability of future audits. We also provided copies of the letters to each awardee's other Federal funding agencies for their use in monitoring and oversight. In the three instances where we rejected the audits, we referred the auditors to the AICPA Professional Ethics Division and Peer Review Program for additional review.

OIG Quality Control Reviews Find Unacceptable and Partially Acceptable Single Audits

Quality Control Reviews (QCR) consist of on-site reviews of auditor documentation in support of Single Audits. QCRs are an important tool for determining whether Single Audits meet Government auditing and reporting requirements, and for helping to improve future audit quality. Firms can receive a QCR rating of Pass, Pass with Deficiencies, or Fail. During this period, we issued two reports on our QCRs of Single Audits for NSF awardees.

REVIEW OF THE GEORGE E. BROWN U.S.-MEXICO FOUNDATION FOR SCIENCE

We rated the Single Audit conducted on The George E. Brown U.S.-Mexico Foundation for Science (known by its Mexican acronym, FUMEC) for the year ended December 31, 2016, as Fail. We recommended that the auditors conduct additional testing to support their audit conclusions and opinions on FUMEC's FY 2016 Single Audit. The auditors agreed with our recommendations and plan to make corrective actions. We will review the additional work upon receipt of a revised audit reporting package to determine whether it complies with the applicable requirements. Due to the nature of the quality deficiencies identified during our review, we referred the auditors to the AICPA Professional Ethics Division and Peer Review Program for additional review.

REVIEW OF TECHNICAL EDUCATION RESEARCH CENTERS, INC.

We rated the Single Audit conducted on Technical Education Research Centers, Inc. for the year ended December 31, 2017, as Pass with Deficiencies. We recommended that the auditors conduct additional testing of Technical Education Research Centers, Inc.'s compliance with certain Federal requirements and submit a revised audit reporting package that includes all required elements. The auditors generally agreed with the recommendations, have conducted the recommended additional testing, and plan to provide additional training to support staff. During the next period, we will review the revised audit reporting package and additional testing to determine whether it complies with the applicable requirements.

Investigations

The Office of Investigations is dedicated to promoting efficiency and effectiveness in NSF programs and operations. We investigate wrongdoing involving organizations or individuals that receive awards from, conduct business with, or work for NSF. We assess the seriousness of misconduct and recommend proportionate action. We work in partnership with agencies and awardees to resolve issues when possible.

Program Integrity Investigations

As part of our mission, we investigate allegations concerning misuse of NSF funds, false statements in documents submitted to NSF, and employee misconduct. When we identify a violation of a criminal or civil statute, we refer our investigations to the Department of

Justice (DOJ) for criminal prosecution or civil action. When appropriate, we also refer matters to NSF for administrative action, such as award termination and governmentwide suspension or debarment.

APPEALS COURT UPHOLDS SBIR/STTR FRAUD CONVICTIONS AND SENTENCES

We previously reported that, after an 18-day jury trial in 2015, two scientists (who are married to each other) were convicted on all counts of wire fraud, conspiracy to commit wire fraud, aggravated identify theft, and falsification of records.¹⁵ The scheme involved submitting proposals for Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) funding that included misrepresentations regarding facilities, the eligibility of principal investigators (PI), subcontractors, letters of support, and costs. As previously reported, the district court sentenced the husband and wife defendants to 15 and 13 years in prison respectively and ordered them to pay restitution equal to the total amount awarded—more than \$10.5 million.¹⁶ The defendants appealed their sentences.

During this reporting period, the Court of Appeals (Court) affirmed the district court in all respects. The Court explained that Congress established the SBIR / STTR programs to provide qualified small businesses with research-and-development support to turn research into actual commercial products and services. On appeal, the defendants admitted that their proposals were faked but nonetheless claimed that their convictions should be overturned because they had performed research and published the results in scientific journals. However, the Court rejected their arguments, stating, “These are not job programs for unemployed scientists and do not fund research merely for the sake of research.” Because the defendants’ “lies, forgeries, and fabricated price quotes” related to key components for commercialization, their frauds deprived the government of what it actually was paying for and of the money that should have been awarded to other researchers. The Court also affirmed the defendants’ sentences, which were based in part on the \$24.5 million that they sought from their fraudulent proposals to multiple Federal agencies.

SBIR/STTR COMPANY FOUNDER AND FORMER UNIVERSITY PROFESSOR CONVICTED OF CONSPIRACY, FALSE STATEMENTS, AND OBSTRUCTION

We previously reported¹⁷ on our investigation of a former university professor and founder of two SBIR / STTR companies who submitted grant applications to NSF for work that had already been completed overseas. The founder used and intended to use grant funds for work unrelated to the proposed research. We referred the case to a U.S. Attorney’s Office where it was accepted for criminal prosecution, and the founder was arrested on a charge that he conspired with others to defraud the Federal Government. We recommended NSF suspend the founder and his companies Governmentwide. We subsequently reported that the founder and principal investigator were indicted on charges including false statements, false claims, wire fraud, conspiracy, and obstruction. The founder and his companies were also suspended Governmentwide.¹⁸

¹⁵ March 2015 Semiannual report, p. 19

¹⁶ September 2015 Semiannual report p. 21

¹⁷ September 2017 Semiannual Report, p. 13

¹⁸ March 2018 Semiannual Report, p. 11

During this reporting period, after a four-day trial, the founder was convicted of conspiracy and three counts of false statements for submitting NSF proposals for which the work was already completed and intending to use the funds for other purposes, and for obstruction for providing falsified timesheets during our investigation. A sentencing date is pending.

HUSBAND AND WIFE SENTENCED FOR SBIR/STTR FRAUD, ORDERED TO PAY MORE THAN \$5 MILLION IN RESTITUTION

We previously reported on our investigation of a company that appeared to be operating from a home address, contrary to its representations in SBIR proposals submitted to NSF. When we contacted the PI listed on a proposal, he was unaware that he appeared on the company's proposal. Further investigation identified concerns regarding SBIR and STTR funding to a second company operated by the brother and sister-in-law of the first company's founder. We discovered that both companies received supplemental grant funding by using shell companies that they represented to NSF as legitimate third-party investors. The companies listed in proposals and reports the names and resumes of individuals without their knowledge or consent and included in proposals fabricated letters of support. The second company principals (husband and wife) also used fabricated quotations from their shell companies to inflate award budgets. We referred the case to a U.S. Attorney's Office where it was accepted for criminal prosecution. We previously reported the corporate guilty plea¹⁹ to a felony and our recommendation to debar the first company and its founder.²⁰

During this reporting period, NSF entered into a settlement agreement with the founder of the first company, in which the founder agreed to a voluntary exclusion from Federal funding for three years and from Federal SBIR/STTR funding for five years. We also previously reported the arrest,²¹ and felony guilty pleas entered by the husband and wife.²² During this semiannual period, the husband was sentenced to more than 30 months imprisonment and the wife received home confinement followed by probation. The court ordered more than \$5 million in restitution, including more than \$1.5 million to NSF.

SBIR/STTR COMPANIES AND PRINCIPAL SENTENCED, SUED BY THE DEPARTMENT OF JUSTICE, AND RECOMMENDED FOR DEBARMENT

We previously reported²³ the termination of awards made to several companies that claimed their facilities and equipment were in separate, distinct locations in the Midwest, when the companies were sharing a facility and common employees on the West Coast. The owner of one of the companies pled guilty to wire fraud and three of the companies pled guilty to conspiracy to commit wire fraud. The entities in total paid more than \$1 million in restitution prior to entering their pleas. NSF's portion of the restitution was more than \$800,000.²⁴

¹⁹ March 2018 Semiannual Report, p. 10

²⁰ September 2018 Semiannual Report, p. 11

²¹ March 2016 Semiannual Report, p. 20

²² March 2018 Semiannual Report, p. 10

²³ March 2016 Semiannual Report, p. 21

²⁴ September 2018 Semiannual Report, p. 10-11

During this semiannual period, the company owner who pled guilty to wire fraud was sentenced to probation and community service. Following the sentencing, the U.S. Attorney's Office filed a civil complaint seeking damages from the company principals beyond what they previously paid as restitution in the criminal case. We also recommended that NSF debar all the companies and their principals for five years. NSF's decision is pending.

NON-PROFIT FINANCIAL DIRECTOR PLEADED GUILTY AND WAS SENTENCED FOR FRAUD SCHEME

We previously reported that the former financial director of a non-profit organization was indicted for theft, money laundering, and filing a false tax return.²⁵ The non-profit organization received more than \$3 million in Federal grant funds including more than \$1.6 million in NSF awards to address water quality, health, environmental, and safety issues. According to court documents, the former director misapplied funds from the organization, which included Federal funds, for his personal benefit. This included the purchase of an airplane, maintenance on an airplane, flight school for himself, the purchase of real estate, more than a dozen firearms, and online pornography fees. He also directed another individual to create shell companies and diverted funds to these companies to hide the airplane and real estate purchases.

During this reporting period, the former director pleaded guilty to one count of theft from a Government program and filing a false tax return. The former director was sentenced to 18 months imprisonment followed by 2 years of supervised release.

PI PAID CRIMINAL RESTITUTION IN ADVANCE OF SENTENCING

We previously reported on a joint investigation of a PI who created a shell company to obtain about \$200,000 in supplemental SBIR funding from NSF and NASA. The PI submitted grant proposals, correspondence, and reports that misrepresented the identity of an individual allegedly working for the shell company and the existence of an outside investment from that company. The PI was indicted on four counts of wire fraud²⁶ and subsequently pled guilty²⁷ to conversion of Federal funds to personal use. During this semiannual period, the PI paid restitution in advance of sentencing, including more than \$45,000 to NSF. Sentencing is scheduled for May 2019.

UNIVERSITY AGREED TO PAY MORE THAN \$1 MILLION TO RESOLVE ALLEGATIONS RELATED TO REBATES AND CREDITS

We investigated an allegation that a university received rebates and discounts on purchases for Federal awards, pursuant to various arrangements with vendors and purchase card issuers, and did not report the rebates and discounts to the Government or credit them to Federal awards. This multi-agency investigation determined that the university failed to credit Federal awards for certain portions of the rebates and discounts associated with its charges, resulting in overcharges to the Federal awards. We referred the matter to a U.S. Attorney's Office and the case was accepted for civil prosecution. The

²⁵ March 2018 Semiannual Report, p. 8

²⁶ March 2016 Semiannual Report, p. 21

²⁷ September 2018 Semiannual Report, p. 11

university agreed to pay more than \$1 million plus interest to resolve allegations that it violated the False Claims Act. More than \$250,000 will be returned to NSF.

CONTRACTOR AGREED TO SETTLEMENT AND PAID MORE THAN \$800,000

We identified a company that appeared to have violated the subcontracting limitations on an NSF contract awarded under the SBA 8(a) Business Development program. The company used subcontractors to conduct work without informing or receiving authorization from NSF, as required by the 8(a) contract terms. The work was also performed at substantially less cost than disclosed to NSF. We identified similar concerns with contracts the company received from other Federal agencies. The joint investigation identified multiple contracts where some of the labor was conducted by subcontractors at a substantially lower rate than the rate the company was charging the Government.

We referred the case to a U.S. Attorney's Office where it was accepted for civil prosecution. The company ultimately agreed to pay more than \$800,000 to settle allegations that it used subcontractors to perform labor without requesting and receiving government authorization to do so, had subcontractors perform more than the permitted percentage of labor under certain small business contracts, and billed the Government at higher labor rates than permissible. NSF's portion of the settlement was more than \$300,000. During the investigation, the company also implemented new policies and compliance measures to ensure that this conduct would not happen again.

UNIVERSITY AGREED TO PAY MORE THAN \$200,000 TO SETTLE ALLEGATIONS OF MISUSE OF FUNDS

We substantiated an allegation that a university misused funds associated with two NSF awards. The university improperly used NSF funds by posting expenditures knowing there were no supporting documents and by charging the awards for unallowable items including furniture, cell phones, and expenses associated with a student who did not meet program requirements. We referred the case to a U.S. Attorney's Office where it was accepted for prosecution under the civil False Claims Act. Ultimately, the university entered into a civil settlement, agreed to return more than \$200,000 to NSF, and entered into a 5-year compliance plan.

SBIR/STTR PI AND COMPANY DEBARRED FOR FOUR YEARS

We previously reported on an SBIR company proposal that appeared to contain text copied without proper attribution. We previously investigated the PI on that proposal for receiving duplicative funding from multiple agencies, but the PI was not prosecuted for that conduct due to the statute of limitations. We uncovered evidence that the company received duplicate funding from multiple Federal agencies for the same work, paid the PI and his family from funds budgeted for employees, and submitted fabricated letters of support in grant proposals. We referred the case to a U.S. Attorney's Office where it was accepted for criminal prosecution. The PI pled guilty to one count of submitting false statements to the Government and subsequent sentence of one year of probation and

forfeiture of more than \$100,000.²⁸ We also recommended that NSF debar the PI and his company for at least 10 years.²⁹ During this semiannual period, NSF debarred the PI and his company for 4 years.

NSF WITHHELD FINAL PAYMENTS OF MORE THAN \$400,000 TO SBIR COMPANY FOLLOWING CIVIL SETTLEMENT

We previously reported that an SBIR company charged NSF and other Federal agency awards for hours worked on unrelated projects and activities. We found evidence that the company requested NSF funds for work it already completed and charged NSF for expenses that were unrelated to the NSF awards. We referred the case to a U.S. Attorney's Office where it was accepted for civil prosecution. Without admitting liability, the company agreed to pay more than \$2.5 million to resolve allegations that it submitted false information to multiple Federal agencies regarding company personnel, investments, and expenditures.³⁰ During this semiannual period, NSF agreed with our recommendation and permanently withheld the company's remaining award payments of more than \$400,000.

NSF WITHHELD FINAL PAYMENT TO SBIR COMPANY

We previously reported that a company's PI was not employed with the company for the first few weeks of its NSF SBIR award, and did not meet the SBIR primary employment requirements until the final month of the award.³¹ We recommended that NSF permanently withhold the final payment on the award and that it debar the company and the PI for 1 year. During this period, NSF agreed with our recommendation to permanently withhold the final \$50,000 payment to the company but declined to debar the company or the PI.

NSF TERMINATED SBIR PHASE II AWARD, RECOVERING MORE THAN \$400,000

NSF agreed with our recommendation to terminate an active SBIR Phase II award and recover more than \$400,000 in unspent funds. The SBIR program requires that the PI on an award be primarily employed with the awardee company. NSF defines "primarily employed" as 51 percent and considers employment of more than 19.6 hours a week elsewhere to be in violation of this requirement. Our investigation found that the grantee had a full-time student serve as a PI on its completed Phase I award and had the same full-time student serving as PI on its active Phase II award. Our investigation determined that the PI's time commitments as a full-time student exceeded 19.6 hours per week during both the Phase I and Phase II awards, in violation of the primary employment requirement. The grantee did not disclose the PI's student commitments to NSF. Our investigation is ongoing.

²⁸ March 2018 Semiannual Report, p. 10

²⁹ September 2018 Semiannual Report, p. 11

³⁰ September 2018 Semiannual Report, p. 7

³¹ September 2018 Semiannual Report, p. 9

NSF WITHHOLDS FINAL PAYMENT OF MORE THAN \$200,000 TO SBIR COMPANY

We previously reported on our investigation of allegations that a company and its owner made false representations about the identity of the PI in an NSF SBIR grant proposal and in subsequent communications with NSF, once the SBIR grant was awarded. We recommended NSF permanently withhold the final payment and debar the company and the company founder for three years.³² This reporting period, NSF canceled the final payment, resulting in more than \$200,000 of NSF funds put to better use. NSF's decision on the debarment recommendation is pending.

NSF AND UNIVERSITY MUTUALLY AGREED TO TERMINATE AWARD; MORE THAN \$150,000 IN FUNDS RECOVERED

We previously reported on our investigation of an allegation that the PI on an NSF Faculty Early Career Development Program (CAREER) award left his awardee university, took a position at a university in another country, yet remained PI on the award to the awardee university. During the award, the PI accepted a position at the other university and resigned from the awardee university but maintained an adjunct position. The PI disclosed the departure from the awardee university to the NSF Program Officer and received permission from the NSF Program Officer to remain as PI on the award as an adjunct. However, the PI's departure from the awardee university made the PI ineligible for the award because CAREER award PIs must be in tenure-track or tenure-track-equivalent positions in the U.S. NSF agreed with our recommendation to suspend the award.³³ During this reporting period, we recommended that NSF terminate the award, which NSF communicated to the university. NSF and the university mutually agreed to terminate the award, which resulted in the recovery of more than \$150,000 in unspent funds.

NSF SUSPENDED AWARD PENDING FURTHER INVESTIGATION

We investigated an allegation that a PI at a university improperly used NSF funds associated with several supplements to an award. We reviewed award-related records and interviewed pertinent university staff and the NSF Program Officer. We determined the PI added students to the award who were ineligible because they were not graduate students, as required by the specific award terms and conditions. We also found that the university had not maintained adequate supporting documentation for certain undergraduate, graduate, and post doctorate expenses charged to the award. NSF agreed with our recommendation to suspend the award. Our investigation is ongoing.

NSF RECOVERS DUPLICATE RESEARCH FUNDING

We investigated a PI who received funding from NSF for research that was also funded by multiple awards from outside foreign sources. The PI failed to disclose the foreign awards either to NSF or to the original grantee university and subsequently transferred the NSF award to two other universities in the United States.

The original grantee university learned of the potential duplication in funding shortly before the PI transferred to the second university, but without access to the foreign

³² September 2018 Semiannual Report, p. 9

³³ September 2018 Semiannual Report, p. 10

awards, could not determine whether the awards were duplicative. During our investigation, we obtained access to the foreign awards and enlisted a subject matter expert to compare that research with the NSF-funded research. The expert determined that the research funded by the foreign sources was essentially the same as that funded by NSF. Based on our recommendation, NSF terminated the award, resulting in more than \$14,000 of funds put to better use.

Research Misconduct Investigations

Research misconduct damages the scientific enterprise, is a potential misuse of taxpayer dollars, and undermines the trust of citizens in Government-funded research. It is imperative to the integrity of research that NSF-funded researchers carry out their projects with the highest ethical standards. Pursuing allegations of research misconduct — plagiarism, fabrication, and falsification — continues to be a focus of our investigative work.

NSF takes research misconduct seriously, as do NSF's awardee institutions. During this reporting period, institutions took actions against individuals who committed research misconduct, including termination of employment and dismissing a Ph.D. student. For each case described in this section, we recommended that NSF take significant actions against the individuals. Unless otherwise specified, NSF's decisions are pending.

PROFESSOR FALSIFIED AND FABRICATED FIGURES, BLAMED STUDENTS, AND INVENTED COLLEAGUE

A university investigated allegations of falsification against a professor. The professor allegedly altered a figure in a manuscript to show a desired result rather than the experimental result obtained by his graduate students. The professor told the investigation committee (IC) that he altered the figure because his students had not properly analyzed the experimental data, so it was a correction, not a falsification. The IC found the professor had no evidence to support his response, and there was ample evidence supporting a conclusion that he altered the figure to enhance the results and to get a manuscript accepted for publication. The IC concluded the professor falsified the figure and accompanying caption.

During its investigation, the IC learned of two additional allegations against the professor. In both instances, graduate students alleged the professor gave them questionable data of unknown origin. In one instance the professor claimed he sent a sample provided by a student out for analysis. The professor then provided the data from the analysis to his student. The student subsequently realized he forwarded the wrong sample to the professor, and the data could not have come from the sample provided. The IC concluded the data provided by the professor were fabricated.

In the other instance, the professor claimed a colleague provided him the questioned data at a conference. The IC learned the professor did not attend that conference, and that colleague did not exist. The professor subsequently admitted he fabricated those data and told the IC he could not justify his actions in trying to blame his graduate student or lying to the IC.

The university found that the professor committed the three acts — one falsification and two fabrications — deliberately, that the acts were significant departures from community standards, and, thus, it concluded the professor committed research misconduct. Based on the research misconduct and the numerous aggravating factors, the university terminated all the professor's positions at the university.

We accepted the university's report and concurred with its findings. We recommended NSF make a finding of research misconduct, debar the professor for 5 years, and direct that he complete a responsible conduct of research (RCR) course within a year. Additionally, we recommended that for 7 years NSF: bar him from serving as a peer reviewer or advisor; require him to provide certifications and assurances; and submit a detailed data management plan with each new proposal.

Actions by NSF Management on Previously Reported Research Misconduct Investigations

Based on our recommendations, NSF adjudicated seven research misconduct cases reported in previous semiannual reports. Except where noted, each case resulted in NSF making a finding of research misconduct, issuing a letter of reprimand, and requiring Responsible Conduct of Research (RCR) training. NSF also took additional significant actions in response to our recommendations, as summarized below:

- In the case of a former PI who falsified data³⁴ and previously had been found by NSF to have committed research misconduct by plagiarizing, NSF: debarred the former PI for 5 years; required the former PI to submit certifications and assurances, and detailed data management plans with annual certifications of adherence for any proposals or reports to NSF for 10 years; and prohibited the former PI from participating as an NSF reviewer, advisor, or consultant for 10 years.
- In the case of a PI who copied text into an NSF proposal from a junior scientist's white paper that he received while serving as a program officer at another Federal agency,³⁵ we previously reported that NSF made a finding of Research Misconduct and imposed actions, including proposed debarment. The PI appealed the finding and proposed debarment. During this reporting period, NSF upheld its original finding and actions. NSF debarred the PI for 1 year; required the PI to submit certifications and assurances for 5 years; and barred him from participating as an NSF peer reviewer, advisor, or consultant for 6 years.
- In the case of a graduate student who falsified data in two experiments,³⁶ NSF proposed debarring the former graduate student for 1 year.
- In the case of the former NSF program officer who plagiarized from a declined NSF proposal,³⁷ NSF proposed to debar the former program officer for two years. The

³⁴ September 2018 Semiannual Report, p. 12

³⁵ March 2018 Semiannual Report, p.12; September 2018 Semiannual Report pp. 14-15

³⁶ September 2018 Semiannual Report, pp. 12-13

³⁷ September 2018 Semiannual Report, p. 13

former program officer notified NSF that he plans to appeal the research misconduct finding and the proposed debarment.

- In the case of a PI who falsified letters of support and plagiarized in proposals,³⁸ NSF barred the PI from serving as an NSF reviewer, advisor, or consultant for 3 years, and required the PI to submit certifications and assurances with each document submitted for 3 years. The PI appealed the decision and the agency's response is pending.
- In the case of a PI who plagiarized into a proposal,³⁹ NSF barred the PI from serving as an NSF reviewer, advisor, or consultant for 1 year, and required the PI to submit certifications that he complied with his university's requirements.
- In the case of a PI who admitted that an unnamed postdoctoral scholar wrote his proposal,⁴⁰ NSF concluded that the PI's actions were careless, which is not a culpable level of intent. Because the PI did not act with the requisite level of intent, NSF concluded his actions did not warrant a finding of research misconduct.

Administrative Investigations

Our office investigates a wide variety of allegations that are not pursued as criminal or civil matters or do not meet the strict definition of research misconduct. These cases, which are resolved administratively, include (but are not limited to) misallocation of grant funds, violations of human and animal subjects regulations, violations of peer review confidentiality, conflicts of interest, and employee misconduct.

HUMAN SUBJECTS RESEARCH CONCERNS LED TO AWARD TERMINATION WITH NEARLY \$630,000 RETURNED

An NSF-funded PI's research was suspended after her university's Institutional Review Board (IRB) determined there was serious non-compliance with regulations governing research with human subjects. The PI's non-compliance included conducting human subjects research without IRB approval and allowing recruited subjects to participate in research without informed consent.

The university restricted the use of the collected research data and rendered inaccessible an online publication of a conference poster that contained the affected human subjects research data. The PI resigned from the university and the university requested to change the PI on the award, but NSF declined to allow the substitution. The university closed its portion of the collaborative award, resulting in nearly \$630,000 of remaining funds returned to NSF. Our investigation continues regarding the collaborator's portion of the award and research project.

³⁸ September 2018 Semiannual Report, p. 13

³⁹ September 2018 Semiannual Report, p. 14

⁴⁰ September 2018 Semiannual Report, p. 14

UNIVERSITY RETURNS AWARD FUNDS PI SPENT FOR BASIC SUPPLIES

We reviewed a matter in which a PI was as much as 3.5 years overdue in submitting the annual and final reports for an award. He also had not submitted the final report for another award, which was also 3.5 years overdue. Because there was little information about what the PI claimed to accomplish under those two grants, we requested the award ledgers from his university. We found that on one of the awards, the PI spent grant funds to supply his home office with pens, paper, a laptop, iPad, and related accessories. He also inappropriately used the grant funds to ship a colleague's books to another colleague. On the other award, we found basic office supplies for the PI's university office were directly charged to the award. We contacted the university regarding these issues and requested the university review our findings. The university agreed with our findings and paid back the inappropriate charges and associated indirect costs totaling more than \$11,000.

Statistical Data

Audit Data

Table 1. 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	\$0
B.	Recommendations that were issued during the reporting period	\$0
C.	Adjustments related to prior recommendations	\$0
Subtotal of A+B+C		\$0
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	\$0
F.	For which no management decision was made within 6 months of issuance	\$0

Table 2. Audit Reports Issued with Questioned Costs

		Number of Reports	Questioned Costs	Unsupported Costs ⁴¹
A.	For which no management decision has been made by the commencement of the reporting period	11	\$4,028,112	\$141,117
B.	That were issued during the reporting period	5	\$982,624	\$442,015
C.	Adjustment related to prior recommendations	0	\$0	N/A
Subtotal of A+B+C		16	\$5,010,736	\$583,132
D.	For which a management decision was made during the reporting period	6	\$1,186,016	N/A
	i. Dollar value of disallowed costs	N/A	\$332,721	N/A
	ii. Dollar value of costs not disallowed	N/A	\$853,295	N/A
E.	For which no management decision had been made by the end of the reporting period	10	\$3,824,720	\$530,571
F.	For which no management decision was made within 6 months of issuance	5	\$2,842,096	\$88,556

⁴¹ Unsupported costs are a subset of questioned costs.

Table 3. Reports Issued (By OIG and independent public accounting firms)

Report Number/Date Issued	Title	Questioned Costs	Unsupported⁴² Costs	Better Use of Funds
19-1-001 December 19, 2018	<i>Performance Audit of Incurred Costs-Northwestern University</i>	\$51,461	\$2,548	\$0
19-1-002 December 21, 2018	<i>Performance Audit of Incurred Costs-University of Wyoming</i>	\$441,683	\$426,102	\$0
19-1-003 February 25, 2019	<i>Performance Audit of Incurred Costs-Colorado State University</i>	\$19,365	\$13,365	\$0
19-1-004 February 28, 2019	<i>Performance Audit of Incurred Costs-Princeton University</i>	\$436,021	\$0	\$0
19-1-005 March 13, 2019	<i>Performance Audit of Incurred Costs-University of Tennessee-Knoxville</i>	\$34,094	\$0	\$0
19-2-001 November 14, 2018	<i>Audit of the National Science Foundation's Fiscal Years 2018 and 2017 Financial Statements</i>	\$0	\$0	\$0
19-2-002 December 13, 2018	<i>Performance Audit of the National Science Foundation's Information Security Program for FY 2018</i>	\$0	\$0	\$0
19-2-003 December 21, 2018	<i>NSF Could Improve its Controls to Prevent Inappropriate Use of Electronic Devices</i>	\$0	\$0	\$0
19-2-004 March 8, 2019	<i>Audit of the National Science Board's Compliance with the Government in the Sunshine Act</i>	\$0	\$0	\$0
19-8-001 October 18, 2018	<i>Quality Control Review of William Morales & Associates, P.C., FY 2016 Single Audit of the George E. Brown United States-Mexico Foundation for Science</i>	\$0	\$0	\$0

⁴² Unsupported costs are a subset of questioned costs.

19-8-002 March 14, 2019	Quality Control Review of Alexander, Aronson, Finning & Co., P.C.'s FY 2017 Single Audit of Technical Education Research Centers, Inc.	\$0	\$0	\$0
Unnumbered February 22, 2019	National Science Foundation FY 2018 Management Letter	\$0	\$0	\$0
Unnumbered January 28, 2019	Government Charge Card Letter from NSF OIG	\$0	\$0	\$0
Total	13 Reports Issued	\$982,624	\$442,015	\$0

Table 4. Reports Issued before October 1, 2018⁴³ with Unimplemented Recommendations as of March 31, 2019 (Summary Table)

Year	Number of Reports with Unimplemented Recommendations	Number of Unimplemented Recommendations	Dollar Value of Aggregate Potential Cost Savings ⁴⁴
2015	1	1	N/A
2016	2	22	\$2,003,109
2017	6	28	\$56,862
2018	7	64	\$876,375
Total	16	115	\$2,936,346

⁴³ NSF has commented on all reports within 60 days of receipt.

⁴⁴ Aggregate potential savings are "questioned costs" if the recommendations have not been resolved, and "sustained costs" if the recommendations have been resolved.

Table 5. Reports Issued before October 1, 2018, for Which No Management Decision Has Been Made by March 31, 2019, Including the Aggregate Potential Cost Savings of Those Recommendations (Detailed Table)⁴⁵

Report No.	Issued	Topic	Summary	No. of Recs without Mgmt. Decision	Why Mgmt. Decision Has Not Been Made	Desired Time-table for Mgmt. Decision	Aggregate Potential Cost Savings
16-1-004	2/11/16	University of Washington	Incurred Cost Audit	14	Resolution further impacted due to re-prioritization of workload after lapse in NSF appropriations.	7/30/19	\$2,003,109
18-1-003	5/18/18	North Carolina State University	Incurred Cost Audit	11	Resolution impacted by lapse in NSF appropriations and need to participate on planned advance monitoring activities at an NSF major multi-user research facility.	9/30/19	\$49,192
18-1-005	9/6/18	National Academy of Sciences	Incurred Cost Audit	13	Resolution impacted by lapse in NSF appropriations and need to participate on planned advance monitoring activities at an NSF major multi-user research facility.	9/30/19	\$90,902
18-1-006	9/11/18	Massachusetts Institute of Technology	Incurred Cost Audit	16	Resolution impacted by lapse in NSF appropriations. NSF Management decisions are under review.	5/31/19	\$331,114
18-1-007	9/27/18	University of Montana	Incurred Cost Audit	9	Due to complex issues, coordination with the cognizant Federal audit agency is required.	9/30/19	\$367,779
Total		5 reports		63			\$2,842,096

⁴⁵ This table shows only recommendations that are unimplemented because they are **unresolved**, either because NSF has not provided corrective action plans, or NSF and OIG have not agreed on the adequacy of the proposed corrective actions. Table 4 includes additional reports/recommendations because it includes the reports with unresolved recommendations shown in this table, plus reports with resolved recommendations that have not yet been implemented.

Investigations Data

October 1, 2018 – March 31, 2019

Table 6. Investigative Case Activities

Referrals ⁴⁶ to DOJ Criminal Prosecutors	10
Referrals to Criminal State/Local Authorities	0
Indictments/Criminal Information	0
Arrests	0
Criminal Convictions/Pleas	2
Referrals to DOJ Civil Prosecutors	
Referrals to DOJ Civil Prosecutors	4
Referrals to Civil State/Local Authorities	0
Civil Settlements/Judgements/Compliance Plans	4
Investigative Reports Issued to NSF Management for Action⁴⁷	
Investigative Reports Issued to NSF Management for Action ⁴⁷	17
Research Misconduct Findings Issued by NSF	4
Government-wide Suspensions/Debarments/ Voluntary Exclusions	5
Administrative Actions taken by NSF ⁴⁸	27
Total Investigative Recoveries⁴⁹	
Total Investigative Recoveries ⁴⁹	\$4,522,891
Substantiated Whistleblower Retaliation	
Substantiated Whistleblower Retaliation	0
Substantiated Agency Interference	
Substantiated Agency Interference	0

Table 7. Investigative Case Statistics

	Preliminaries	Investigations
Cases Active at Beginning of Period	1	179
Cases Opened this Period	6	36
Cases Closed this Period	6	42
Cases Active at End of Period	1	173

⁴⁶ We count referrals of individuals and entities separately.

⁴⁷ We count only Investigative Reports issued to NSF that include recommendations for administrative action (e.g. findings of Research Misconduct, imposition of Government-wide Suspension or Debarment, or suspension/terminations of awards). We count recommendations for each individual and entity separately.

⁴⁸ This includes sanctions related to findings of Research Misconduct, suspension/termination of awards or employee misconduct.

⁴⁹ This includes funds returned to NSF, restitution, fees, and funds put to better use.

Research Misconduct (RM) Statistics FY 2010 – FY 2019

Table 8. Allegations

FY	RM Allegations Received (Including allegations made against both funded and declined NSF proposals.)			
	Plagiarism	Fabrication	Falsification	Total ⁵⁰
2010	90	4	10	104
2011	85	17	15	117
2012	96	9	8	113
2013	84	10	12	106
2014	38	7	5	50
2015	67	12	12	91
2016	36	10	11	57
2017	38	1	7	46
2018	39	4	3	46
1st half 2019	14	0	1	15
Totals	587	74	84	745

Table 9. Investigations

FY	RM Allegations Investigated (Including case activity defined as “Inquiry” in the RM regulation.)			
	Plagiarism	Fabrication	Falsification	Total ⁵¹
2010	70	3	3	76
2011	58	15	8	81
2012	80	7	5	92
2013	80	8	11	99
2014	36	7	5	48
2015	67	12	12	91
2016	25	6	9	40
2017	27	1	5	33
2018	34	3	2	39
1 st half 2019	9	0	0	9
Totals	486	62	60	608

⁵⁰ Trends cannot be identified across the reporting period (FY 2010–2019) because we used different methods of capturing allegation data in three periods: 1) FY 2010–2012; 2) FY 2013–2015 with new Statutory Law Enforcement authority; and 3) FY 2016–to date, with a new investigative case management system. Periodically, we also conducted proactive assessments looking for plagiarism, which inflated the number of plagiarism allegations in some years. We conducted the last proactive assessment in 2013, but allegations resulting from it were still being identified in 2014.

⁵¹ A small number of allegations involving RM result in criminal or civil investigations; we have not included those allegations in this report.

Note: Tables 8 and 9 only provide information about allegations that come to our office's attention and those we investigate. Thus, they may not reflect the total universe of research misconduct related to NSF proposals or awards. Some of the figures in the tables may differ from previous semiannual reports due to additional allegations being identified during an investigation.

Table 10. Investigative Outcomes⁵²

FY ⁵³	Total RM Findings				Included Debarment ⁵⁴
	Plagiarism	Fabrication/ Falsification	Multi ⁵⁵	Total	
2010	9	1	1	11	2
2011	14	3	0	17	5
2012	18	0	0	18	2
2013	13	3	0	16	6
2014	19	5	2	26	7
2015	10	2	0	12	6
2016	12	5	0	17	4
2017	5	8	0	13	5
2018	7	5	2	14	7
1 st half 2019	1	1	0	2	1
Totals	108	33	5	146	45

⁵² The outcomes reported in this table cannot be linked to the allegations and investigations by fiscal year, due to the varying amount of time it takes to investigate and adjudicate allegations of RM.

⁵³ These data reflect RM findings by NSF in the fiscal year of the finding.

⁵⁴ The debarment action taken by NSF typically lags NSF's RM finding (debarment is a multi-step process with a separate appeal), but in this display we link the debarment data to the date of the RM finding.

⁵⁵ "Multi" indicates that an allegation of plagiarism and either fabrication or falsification was substantiated in our investigation. NSF makes a single finding of RM, even if we refer multiple allegations to them.

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