

Semiannual Report to Congress

April 1, 2021 - September 30, 2021



**National Science Foundation
Office of Inspector General
NSF-OIG-65**

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From the Inspector General

I am pleased to present our semiannual report, which summarizes our work and accomplishments during the second half of fiscal year 2021. During these extraordinary times, our professional and dedicated staff remain focused on work that improves NSF's ability to achieve its mission and protects taxpayers.

In this reporting period, our work led to more than \$4 million in potential savings to taxpayers, including nearly \$3 million in investigative recoveries and \$1.1 million in questioned costs. We continued to address internal and external threats to the integrity of NSF-funded research by investigating wrongdoing involving organizations and individuals that receive awards from NSF. Notably, during this semiannual period, a Small Business Innovation Research (SBIR) company was sentenced to 5 years of probation and restitution of nearly \$900,000 for submitting false statements and claims related to the principal investigator's primary employment, failing to expend grant funds according to approved budgets, and proposing individuals as company employees without their permission.

Just as importantly, our oversight promotes effectiveness, efficiency, and integrity in NSF programs and grants. This semiannual period, we reported on NSF's administration of its Established Program to Stimulate Competitive Research awards; NSF's compliance with agency reporting requirements on improper payment reduction activity; the National Science Board's compliance with the *Government in the Sunshine Act*; and audits of six NSF award recipients that expended nearly \$228 million of NSF funds. We also completed eight audits of NSF award recipients focused on temporary administrative flexibilities authorized by the Office of Management and Budget in response to the COVID-19 pandemic, as well as a capstone report communicating the common themes, findings, lessons learned, and issues identified in these audits. The administrative flexibility audits and the capstone report create a body of work that the federal government can use to inform future decisions if another national emergency calls for these (or similar) administrative flexibilities.

We appreciate the support of NSF management and staff from across the Foundation. Our partnership with NSF, the National Science Board, and Congress is a critical component to fulfilling our mission. We also look forward to continuing our work with the Council of the Inspectors General on Integrity and Efficiency on important governmentwide issues.

Allison C. Arnes



Investigations

The Office of Investigations is dedicated to promoting effectiveness and efficiency 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.

Program Integrity Investigations

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 U.S. 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 government-wide suspension or debarment. The following are brief descriptions of case outcomes during this SAR period:

University Returned More Than \$650,000 to NSF

A university returned more than \$650,000 to NSF for expenses that could not be attributed to four NSF awards under the direction of an associate professor. An employee of the associate professor's company simultaneously managed the university lab and production and sales activities for the professor's company. The university conducted an internal audit, which found the associate professor failed to fully disclose his association with the company to the university, mischarged costs to NSF awards due to comingling of university and company activities, and failed to account for company use of university resources. The audit also identified expenses that could not be allocated to either university or company business and identified weaknesses in university processes. The associate professor resigned from the university. Our investigation determined the associate professor failed to fully disclose his relationship with his company in NSF proposals. We recommended NSF debar the associate professor and his company. NSF's decision is pending.

NSF and University Mutually Terminated More Than \$630,000 in Award Funding

As a result of an investigation conducted by a publishing venue, a university professor was prohibited from publishing in the venue and banned from serving in any review, editorial, or program committee position for 15 years. Additionally, the university placed the professor on administrative leave. We recommended NSF suspend the professor's NSF awards. NSF and the university agreed to mutually terminate the awards, resulting in more than \$630,000 in funds put to better use. Our investigation is ongoing.

University Returned More Than \$230,000 for Salary Mischarges

We investigated an allegation that a university professor maintained a dual affiliation with a foreign university. For approximately 5 years, the professor charged his summer salary to an NSF award while concurrently maintaining employment with a foreign university. As a result of the investigation, the university returned more than \$230,000 to NSF. We recommended that NSF debar the professor. NSF's decision is pending.



Professor Indicted for Failure to Disclose Information to NSF

In April 2021, a professor was indicted on two counts of wire fraud and one count of making a false statement for failure to disclose to NSF all his organizational affiliations and current and pending support. NSF awarded the professor a grant of \$151,099 after he confirmed that he did not have any current or pending funding from non-U.S. sources or hold a position outside of the United States. However, an investigation disclosed the professor had a position with a foreign university and recently submitted a proposal for a foreign grant, neither of which were disclosed to NSF. Based on our recommendation, NSF suspended the award. DOJ issued a [press release](#) regarding this case; the trial is scheduled for April 2022.

Actions Resulting from Previously Reported Program Integrity Investigations

Professor Pleaded Guilty to Making a False Statement

A multi-agency investigation revealed that a university professor and his small business made false statements to another agency in a Small Business Technology Transfer (STTR) proposal, misused those STTR award funds, and misused NSF award funds received through his university to pay STTR award-related expenses.¹ The professor also failed to properly disclose his non-university affiliations and current and pending support in an awarded NSF proposal, and made false statements to federal investigators when interviewed. During this reporting period, the professor pleaded guilty to one count of making a materially false statement. DOJ issued a [press release](#) regarding this case; sentencing has not yet been scheduled.

University Repaid More Than \$225,000 to Resolve Mischarging and I/UCRC Membership Concerns

A multi-agency investigation of a university resulted in a civil settlement to resolve claims arising from its management of funding from NSF and other federal agencies.² During this reporting period, the university agreed to repay NSF more than \$225,000 to resolve outstanding concerns not covered by the civil settlement agreement, including more than \$60,000 in unallocable and unsupported expenses and more than \$180,000 regarding an Industry-University Collaborative Research Center (I/UCRC) award. Although the university reported that all minimum industry membership payments had been made during the award, documents provided to NSF indicated that the minimum required to participate in the program may not have been met. The university agreed to repay more than \$180,000 to NSF to resolve these concerns. It also revised its policies and enhanced its controls for I/UCRC membership payments to ensure this would not recur.

¹ March 2021 Semiannual Report, p. 8

² September 2020 Semiannual Report, p. 3



University Returned More Than \$130,000 to NSF

A former university professor was charged with one felony count of embezzlement for directing NSF award funds to his wife's company.³ Due to circumstances beyond the prosecution's control, the matter was dismissed in state court. The university, however, agreed to take corrective action regarding the expenses in question, including costs paid to the company owned by the former professor's wife. As a result, the university returned more than \$130,000 to NSF. We recommended NSF debar the former professor and his wife's company. NSF's decision is pending.

University Returned Funds Associated with Professor's False Statements

We previously reported⁴ that NSF debarred a tenured full professor who pleaded guilty to providing materially false statements in a scheme to defraud NSF. The university obtained more than \$100,000 from NSF as a result of the professor's false statements. During this reporting period, the university returned those funds to NSF.

SBIR Company Sentenced to Probation and Restitution

An Small Business Innovation Research (SBIR) company pleaded guilty to two counts of false statements after a multi-agency investigation found that the company submitted false statements and claims related to the PI's primary employment, failed to expend grant funds in accordance with approved budgets, and proposed individuals as company employees without their permission.⁵ During this semiannual period, the court sentenced the company to 5 years of probation and ordered restitution of nearly \$900,000. The NSF portion of returned funds was more than \$550,000. DOJ issued a [press release](#) regarding this case.

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.

For each case described in this section, we recommended that NSF make a finding of research misconduct, issue a letter of reprimand, and require interactive responsible conduct of research training, except where noted. Unless otherwise specified, NSF's decisions are pending.

³ September 2019 Semiannual Report, p. 2

⁴ March 2020 Semiannual Report, p. 7; September 2020 Semiannual Report, p. 5; March 2021 Semiannual Report, p. 11

⁵ March 2021 Semiannual Report, p. 10



PI Believed a Certain Amount of Plagiarism Was Acceptable

We investigated an allegation of plagiarism in a proposal and found text and figures copied from seven sources. In response to our inquiry, the principal investigator (PI) said he mistakenly submitted a draft version of the proposal due to time pressure. We referred the investigation to the university.

The university used plagiarism software to review the PI's recent proposals and publications and found that the similarity indexes for the PI's proposals exceeded the university's threshold of 15 percent, while the similarity indexes for his publications were less than the threshold. The PI admitted he knew the proposal in question, as well as several others, contained plagiarized material when he submitted them, but he was not concerned because the amount of copied material was below the university's threshold of acceptability. The university also compared the proposal to a previously submitted version and found that the PI added the plagiarized material in response to the program officer's comments on his original submission. The university concluded the PI intentionally plagiarized and offered the PI the opportunity to resign or be dismissed. The PI chose to resign.

The university's review of the PI's proposals and publications only noted the similarity scores. Therefore, we conducted a more in-depth plagiarism review of a subset of the items the university reviewed. We reviewed three of the PI's publications, a proposal the PI submitted to an industry source, and two additional proposals the PI submitted to NSF as sole PI. We found little-to-no plagiarism in the PI's publications, but substantial amounts of plagiarism in his proposals. More than half of the proposal submitted to the industry source consisted of plagiarized material. The two additional proposals submitted to NSF contained text and figures copied from nine sources. We concluded the PI intentionally plagiarized text and figures in three NSF proposals. We recommended that, for 3 years, NSF require the PI to submit contemporaneous certifications that any proposals or reports he submits to NSF do not contain plagiarized, falsified, or fabricated material (certifications); submit contemporaneous assurances by a responsible official of his employer that any proposals or reports he submits to NSF do not contain plagiarized, falsified, or fabricated material (assurances); and bar the subject from participating as a peer reviewer, advisor, or consultant for NSF.

PI Plagiarized Material in Two Declined Proposals

A PI plagiarized material into two declined NSF proposals. The PI acknowledged copying material without citation but said most of the text was common knowledge or were online sources available for public use that lacked named authors. We referred the matter to the PI's university, which concluded that the PI knowingly committed plagiarism. The university warned the PI that future plagiarism would result in disciplinary action, required the PI complete an online responsible conduct of research training course, and recommended the PI consult with mentors about best practices for citation. We concurred with the university's conclusions. We recommended that, for 1 year, NSF bar the PI from participating as a peer reviewer, advisor, or consultant for NSF and require the PI to provide certifications.



Graduate Student Falsified and Fabricated NSF-Funded Research

An NSF Graduate Research Fellowship Program recipient working on NSF- and National Institutes of Health-supported research falsified and fabricated data in laboratory progress reports for more than 3 years. Specifically, the student allegedly rotated and cropped images and used identical images to represent different results. The university investigated and concluded that the student intentionally committed fabrication and falsification. The university prohibited the student from applying for or receiving federal or external research funding, prohibited the student from serving as a teaching assistant or fellow, and reported the matter to the U.S. Department of Health and Human Services' Office of Research Integrity. The university then dismissed the student from the university, prohibited the student from reapplying to the university, and prevented the student from earning a degree based on prior work.

We accepted the university's report and recommended NSF debar the student for 3 years, and, for 5 years (concurrent with the debarment plus 2 years afterwards), require certifications and assurances; bar the student from participation as a peer reviewer, advisor, or consultant for NSF; and require a data management plan with each submitted NSF proposal.

PI Claimed Verbatim Text Need Not Be Demarcated in Business Proposals

We investigated an allegation of plagiarism in an SBIR proposal and found approximately three pages of copied material from eight sources. In response to our inquiry letter, the PI admitted that the proposal did not demarcate verbatim text, but claimed he used an industry citation format that does not require quotation marks or indentation for copied verbatim text. When asked to provide the name of the citation guide he used, he referenced the "Bluebook" (a legal style manual) and general industry standards. We reviewed multiple style guides and found all require demarcation of copied verbatim text. We reviewed three other SBIR proposals the PI submitted to NSF. All contained similarly copied text. We concluded the PI plagiarized material in four SBIR proposals and knowingly committed research misconduct. We recommended that, for 2 years, NSF require certifications and bar the PI from participation as an NSF peer reviewer, advisor, or consultant.

NSF Suspended Reviewer for Misuse of Confidential Documents

A university investigation and our investigation found that a professor plagiarized when he copied supplementary documents from an NSF proposal he reviewed into his own proposal. Based on our recommendation, NSF suspended the professor from participating as a peer reviewer, advisor, or consultant until further notice. Our investigation is ongoing.

Graduate Student Falsified Data in a Paper and Database

A university received an allegation that a graduate student and a professor misrepresented data in a publication that acknowledged NSF support and deposited the data in a genetic sequence database. The university investigated the professor's and the graduate student's actions separately. In the case of the graduate student, the



investigation committee determined that the graduate student committed research misconduct, engaged in reckless acts of data falsification, and violated the student conduct code. The graduate student knowingly drew conclusions that were not supported by the experimental results and submitted those data in a manuscript for publication and to a public database. The committee recommended that the graduate student retract the publication, remove the falsified data from the database, complete an online responsible conduct of research training, be suspended for two academic semesters, and have his doctoral degree eligibility delayed until the suspension period ended. The university upheld and implemented the recommendations. The graduate student complied with the recommendations and later received his Ph.D., although the professor blocked retraction of the publication.

We accepted the university's findings in lieu of conducting our own investigation, but concluded the graduate student acted with a knowing degree of intent. We concluded the graduate student committed research misconduct by falsifying data in the research record and his actions were a significant departure from accepted practices in the research community. We recommended that NSF require compliance with the requirements imposed by the university, including correction of the research record by retracting the publication. We also recommended that, for 3 years, NSF require certifications and assurances; bar the graduate student from participation as an NSF peer reviewer, advisor, or consultant; require a data management plan with annual certifications; and require a mentoring plan with annual certifications. (A summary of the professor's case follows.)

Professor Published Falsified Data

As described above, a university received allegations that a professor and a graduate student misrepresented data in a publication and deposited the data in a genetic sequence database. In the case of the professor, the university's investigation committee determined the professor committed research misconduct and engaged in reckless acts by allowing the publication of falsified research data. The university upheld and implemented the committee's recommendations, which directed the professor to retract the publication, remove the falsified data from the database, and complete online responsible conduct of research training. It required that for 3 years, a co-advisor be appointed for the professor's students in the laboratory and experienced co-PIs be added to the professor's grant proposals on research outside of his expertise. The professor blocked retraction of the publication.

We concurred with the committee and determined that the professor committed research misconduct by reporting falsified data in research records and that his actions were a significant departure from accepted practices in the research community. We recommended NSF require compliance with the requirements the university imposed, including correction of the research record by retracting the publication. We also recommended that, for 3 years, NSF require certifications and assurances; bar the professor from NSF participation as peer reviewer, advisor, or consultant; require a data management plan with annual certifications; and require a mentoring plan with annual certifications.



NSF Management Actions on Previously Reported Research Misconduct Investigations

NSF adjudicated three research misconduct investigations 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 interactive responsible conduct of research training. NSF also took additional significant actions in response to our recommendations, as summarized below:

- NSF imposed a 2-year, government-wide debarment on a graduate student who plagiarized material from a confidential manuscript he reviewed for a journal and published it as his own.⁶ NSF also required the graduate student to submit certifications and assurances for 6 years and barred him from participating as an NSF peer reviewer, advisor, or consultant for 6 years.
- In the case of a PI who claimed a figure he copied into an NSF proposal as his own,⁷ NSF required that the PI submit certifications and assurances for 2 years and barred him from serving as an NSF reviewer, advisor, or consultant for 2 years. The PI subsequently appealed the 2-year bar on serving as an NSF reviewer, advisor, or consultant. NSF denied the appeal during this reporting period.
- In the case of a PI who plagiarized supplementary documents from another team's awarded proposal into his declined proposal,⁸ NSF required that the PI submit certifications and assurances for 2 years and barred the PI from participating as an NSF peer reviewer, advisor, or consultant for 2 years. During this reporting period, the PI appealed the decision, and NSF denied the appeal.

Administrative Investigations

Our office investigates a 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 allegations such as misallocation of grant funds, violations of human and animal subjects' regulations, violations of peer review confidentiality, conflicts of interest, or employee misconduct.

Actions by NSF Management on Previously Reported Administrative Investigations

PI Received Warning About Human Subject and Vertebrate Animal Use Protocols

In March 2020, we reported that a PI's research was suspended for noncompliance with human subject research regulations, including the improper collection of human and

⁶ March 2021 Semiannual Report, pp. 11-12

⁷ September 2020 Semiannual Report, p. 8; March 2021 Semiannual Report, pp. 13-14

⁸ September 2020 Semiannual Report, p. 8



animal biospecimens from a foreign country. The university subsequently destroyed the affected research data and biospecimens and returned more than \$350,000 to NSF.⁹ During this reporting period, the university concluded its investigation of the PI's misconduct and determined that the inadequate administration of the NSF-funded research stemmed from the PI's unintentional errors regarding applicable regulations; we concurred with this finding. The university implemented additional oversight of the PI's research, and we sent the PI a warning letter emphasizing PI responsibilities regarding human subject and vertebrate animal use protocols, and accurate and timely reporting.

Audits and Reviews

The Office of Audits is responsible for reviewing NSF programs and operations to ensure that administrative, programmatic, and financial aspects of NSF operations are conducted effectively, efficiently, and economically. We also audit grants, contracts, and cooperative agreements funded by NSF. 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.

Audits and Reviews of NSF Programs and Operations

NSF Could Improve EPSCoR Award Guidance and Outreach

We performed this audit to determine if NSF has sufficient procedures and guidance to help ensure awardees comply with NSF and federal requirements in the administration of Established Program to Stimulate Competitive Research (EPSCoR) awards. EPSCoR seeks to enhance research competitiveness in jurisdictions that have historically received a small share of NSF grant dollars by strengthening science, technology, engineering, and math capability and capacity.

We found NSF has procedures and guidance to help ensure EPSCoR awardees comply with NSF and federal requirements. However, NSF could improve program guidance and outreach for its largest EPSCoR awards, especially those that include subrecipients. For example, at the time of our audit, NSF did not provide specific guidance and outreach to prime recipients about assessing and monitoring risk for inexperienced subrecipients. NSF also did not have sufficient guidance on participant support, promotional expenses, and entertainment costs typically associated with EPSCoR-funded education, outreach, and diversity programs. NSF could also improve its monitoring of EPSCoR awardees when the awardees update their accounting systems. We made six recommendations to improve NSF's ability to ensure awardees are complying with NSF and federal requirements in the administration of EPSCoR awards. NSF agreed with all six of the recommendations and is taking steps to strengthen its oversight of EPSCoR awards.

⁹ March 2020 Semiannual Report, p. 14



NSF Directed Funding to Vendor Without Following Competition Rules

During an audit of NSF's administration of EPSCoR awards, we found NSF has been directing funding to a vendor for EPSCoR data collection services for Research Infrastructure Improvement (RII) Track-2 awards since at least 2016 without following procurement guidelines established in federal regulations. Based on information NSF provided, the expected data collection services for these awards would total approximately \$622,000 for 1 year.

We issued a routine activity memorandum, in which we recommended that NSF immediately initiate a contracting process according to federal law for EPSCoR RII Track-2 award data collection services. NSF concurred and stated it has begun corrective actions consistent with our recommendation.

NSF Met Payment Integrity Information Act Requirements for FY 2020

As required by the *Payment Integrity Information Act of 2019* (PIIA, Pub. L. No. 116-117) we reported on NSF's compliance with agency reporting requirements on improper payment reduction activity for FY 2020. For low-risk programs, PIIA requires agencies to perform a risk assessment at least once every 3 years for significant improper payments. We confirmed that NSF met its milestones to date for this 3-year PIIA risk assessment, which must be included in its FY 2021 Annual Financial Report. We also observed that NSF is strengthening its methodology and thus making progress toward preventing and reducing improper payments.

The NSB Continued to Improve Its Compliance with the Government in the Sunshine Act

By law, NSF OIG must conduct an audit every 3 years of the NSB's compliance with the Sunshine Act and recommend corrective actions to ensure public access to the NSB's decision-making process. During this semiannual period, we audited the NSB's compliance with the Sunshine Act from 2018-2020.

The National Science Board's (NSB) meeting closures were generally consistent with Sunshine Act exemptions, and the NSB generally complied with the Act's procedural requirements. The NSB and the National Science Board Office improved compliance with the closure and procedural requirements in the Sunshine Act since our last audit. For example, transcripts for the closed meetings better identified speakers and their comments, and the presiding officer's statement now includes a reminder to keep the discussion focused on the agenda items. The NSB could further enhance its compliance with the Sunshine Act by ensuring a presiding officer's statement is included for each closed plenary executive meeting. The NSB and the National Science Board Office concurred with our recommendation and have developed an action plan to address it.



Audits of NSF Award Recipients

NSF Award Recipients Have Implemented Temporary Administrative Flexibilities

In October 2020, we initiated 10 audits of NSF award recipients focused on temporary administrative flexibilities authorized by the Office of Management and Budget (OMB) in response to the Coronavirus Disease 2019 (COVID-19) pandemic.¹⁰ Our objectives were to determine (1) whether and how each recipient implemented the temporary administrative flexibilities and (2) if costs claimed were allowable, allocable, reasonable, and in compliance with NSF award terms and conditions and applicable federal requirements. The audits included costs that the recipients filed with NSF for reimbursement between March 1, 2020, and September 30, 2020.

We issued final reports for the University of Alaska Fairbanks and the University of Kentucky Research Foundation during the prior semiannual period. This semiannual period, we issued final reports for the remaining 8 audits. We reported that 7 of the 8 recipients appropriately implemented the temporary flexibilities authorized by OMB. However, we found that the California Institute of Technology inappropriately claimed \$16,769 in salary expenses that were charged after the expiration of the flexibilities authorized by OMB Memoranda M-20-17. Additionally, we identified more than \$178,000 in questioned costs across all 8 audits that were not related to the temporary administrative flexibilities.

COVID-19 REPORTS OF AWARD RECIPIENTS THIS SEMIANNUAL PERIOD

Report No.	Award Recipient	Questioned Costs Related to Administrative Flexibilities	Questioned Costs Not Related to Administrative Flexibilities
21-1-009	University of New Mexico		\$20,965
21-1-010	State University of New York at Stony Brook		\$31,341
21-1-011	Florida International University		\$22,144
21-1-012	Florida State University		\$9,023
21-1-013	University of Wisconsin-Madison		\$48,998
21-1-014	California Institute of Technology	\$16,769	\$33,952
21-1-015	University of Central Florida		\$294
21-1-018	University of Michigan		\$11,499
Total		\$16,769	\$178,216

Source: NSF OIG

Common Themes Identified Related to Temporary Administrative Flexibilities

We issued a capstone report communicating the common themes, findings, lessons

¹⁰ OMB M-20-17, M-20-20, and M-20-26



learned, and issues identified in the 10 administrative flexibility audits previously described. The 10 audits and the capstone report create a body of work that the federal government can use to inform future decisions if another national emergency calls for these (or similar) administrative flexibilities.

The NSF award recipients included in this assessment used the flexibilities to continue performing essential research and services during the COVID-19 pandemic and were generally prudent in their stewardship of federal resources. Although the auditors found that recipients generally complied with relevant guidance, the capstone report identified three common themes arising in the 10 audits: 1) recipients were not always able to implement the flexibilities due to insufficient time or guidance; 2) recipients were hesitant to use the flexibilities based on available guidance and federal funding sources; and 3) recipients did not consistently track or monitor their use of the flexibilities, because they were not required to.

Based on the results of the 10 audits, the federal government should consider the following when implementing future administrative flexibilities: recipients might have been less hesitant to use the flexibilities if the guidance had been clearer and reduced opportunities for inconsistent interpretation; recipients might have used the flexibilities more effectively if they had been able to implement them in a more timely and consistent manner; and recipients could have more effectively monitored federal spending during the pandemic if federal agencies had required recipients to formally track the use of implemented flexibilities as well as flexibility-related spending.

Audits of Award Recipients Result in More Than \$900,000 in Questioned Costs

OIG staff and contractors completed audits of six NSF award recipients that expended nearly \$228 million of NSF funds during the respective audit periods.¹¹ The audits assessed the allowability, allocability, and reasonableness of costs charged to NSF and resulted in more than \$900,000 in questioned costs. The findings included unallowable costs, inadequately supported costs, and inappropriately allocated costs. The auditors recommended that NSF direct award recipients to strengthen controls over the areas that led to the questioned costs and that NSF recover the questioned costs.

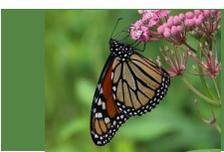
REPORTS OF AWARD RECIPIENTS THIS SEMIANNUAL PERIOD*

Report No.	Award Recipient	Questioned Costs
21-1-007	Clemson University	\$276,440
21-1-008	Emory University	\$89,884
21-1-016	University of South Carolina	\$140,360
21-1-017	Tennessee State University	\$155,432
21-1-019	University of Pittsburgh	\$106,659
21-1-020	University of California San Francisco	\$136,810
Total		\$905,585

*Does not include COVID-19 related reports.

Source: NSF OIG

¹¹ This amount does not include funds included in the COVID-19 related audits previously described.

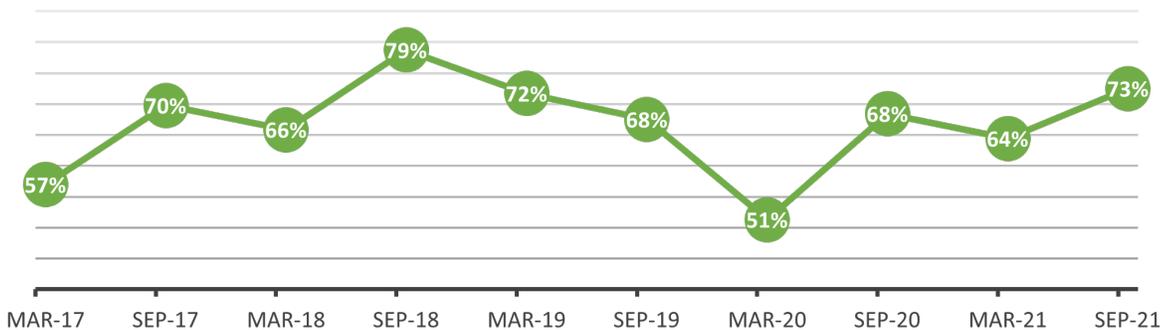


Reviews of Single Audits

*Uniform Guidance*¹² requires colleges, universities, and non-profit organizations that expend \$750,000 or more a year in federal awards to obtain an annual independent financial audit, referred to as a "single audit." NSF relies on the results of single audit reports to plan its oversight efforts, including site visits and other post-award monitoring. We conduct desk reviews on all single audit reporting packages for which NSF is the cognizant or oversight agency.¹³ During a desk review, we examine the audit reporting package, which includes financial statements, federal award expenditures, and auditors' reports, but not the underlying auditors' audit documentation, to determine whether it meets *Uniform Guidance*, *Generally Accepted Government Auditing Standards* (GAGAS), and American Institute of Certified Public Accountants (AICPA) audit standards.

During this period, we conducted desk reviews of 40 single audit reporting packages. The audits were conducted by 25 different independent public accounting firms and covered \$1.6 billion in total federal expenditures, including \$758 million in NSF direct expenditures. As shown in Figure 1, 29 audit reporting packages (73 percent) fully met federal reporting requirements.

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



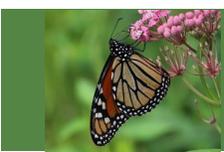
Source: NSF OIG Semiannual Reports

We identified deficiencies in 11 audit reporting packages, including discrepancies in the financial statements; missing or inaccurate report language; missing information needed to identify awards received from pass-through entities; incorrect identification of major programs; inaccurate award information; incorrect identification of the source of funds; reporting packages submitted after required deadlines; lack of identification of cluster awards; audit report findings without the required elements; and inaccurate identification of pass-through awards, cluster awards, and funding sources on the data collection form.

For errors that potentially impacted the reliability of the audit reporting packages, we contacted the auditors and awardees for explanations of each of the potential errors. In

¹² 2 CFR Pt. 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*

¹³ Generally defined as an awardee's predominant federal funding agency.



most cases, the auditors and awardees provided adequate explanations or additional information to show compliance with federal reporting requirements. However, in two instances, we rejected the audit reporting package because the deficiencies were significant. For all reviews, we issued a letter to the auditor and awardee informing them of the results of our review and the actions needed to improve the quality and reliability of future audits. We also provided a copy of the letter to the awardee's other federal funding agencies for their use in monitoring and oversight. In the instances where we rejected the audit, we separately referred the auditor to the AICPA Professional Ethics Division and Peer Review Program for additional review.

Audit Resolution

NSF Sustains \$42,174 of Questioned Claimed Costs

NSF sustained \$42,174 (100 percent) of questioned costs in 2 of the 10 audits on award recipients' use of COVID-19 flexibilities provided by the Office of Management and Budget. In the first case, NSF sustained \$33,151 of questioned costs that the University of Kentucky Research Foundation (UKRF) claimed for materials on an NSF award. UKRF did not provide sufficient documentation that it used the materials to complete award objectives before the award expired. In response to the audit, UKRF took, or proposed to take, corrective actions, including asking PIs to explain in detail how orders placed within 90 days of an award's end date will benefit the project. In the second case, NSF sustained \$9,023 of questioned costs claimed by Florida State University for drawdowns near award expirations (\$4,808), unallowable costs (\$3,648), and inappropriately applied indirect costs (\$567). In response, Florida State University implemented an early stop spending date to draw down expenses accurately, controls to track expenses not typically allowed on federal awards, and procedures at award closeout to verify the correct charging of indirect costs. Neither audit identified problems related to the universities' use of COVID-19 flexibilities.

Peer Review

Federal audit organizations performing work in accordance with Government Auditing Standards must have an external peer review by reviewers independent of the organization every 3 years. The reviews are conducted in accordance with guidelines established by the Council of the Inspectors General on Integrity and Efficiency and focus on the audit organization's quality control system. A quality control system includes the office's organizational structure as well as policies and procedures that facilitate compliance with *Generally Accepted Government Auditing Standards*. On external peer reviews, audit organizations can receive a rating of pass, pass with deficiencies, or fail. The Office of Audits received a rating of pass in March 2021 for the year ending September 30, 2020. A copy of the final peer review report is posted on our [website](#).

The Office of Investigations received a rating of pass in December 2017. The scheduled peer review for the Office of Investigations has been delayed due to the pandemic and is expected to begin in spring 2022.



Statistical Tables

Investigations Data

Table 1. Investigative Case Activities¹⁴

Referrals to DOJ Criminal Prosecutors (individuals and entities counted separately for all referrals)	1
Referrals to Criminal State/Local Authorities	0
Indictments/Criminal Information	1
Arrests	0
Criminal Convictions/Pleas	1
Referrals to DOJ Civil Prosecutors	1
Referrals to Civil State/Local Authorities	0
Civil Settlements/Judgements/Compliance Plans	0
Investigative Reports Issued to NSF Management for Action	16
Research Misconduct Findings Issued by NSF	2
Government-wide Suspensions/Debarments/Voluntary Exclusions	1
Administrative Actions taken by NSF (Includes sanctions related to findings of research misconduct, suspension/termination of awards or employee misconduct)	16
Total Investigative Recoveries (includes funds returned to NSF, restitution, fees, proceeds from civil settlements and funds put to better use)	\$2,961,919
Substantiated Whistleblower Retaliation	0
Substantiated Agency Interference	0

Table 2. Investigative Case Statistics¹⁵

	Preliminaries	Investigations
Cases Active at Beginning of Period	2	131
Cases Opened this Period	6	18
Cases Closed this Period	7	35
Cases Active at End of Period	1	114

¹⁴ For "Investigative Reports Issued to NSF Management for Action" we count only investigative reports issued to NSF that include recommendations for administrative action (e.g. findings of research misconduct, imposition of governmentwide suspension or debarment, or suspension/terminations of awards). We count recommendations for each individual and entity separately.

¹⁵ Research misconduct statistics will be reported on our website.



Audit Data

Table 3. 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 4. Audit Reports Issued with Questioned Costs¹⁶

		Number of Reports	Questioned Costs	Unsupported Costs
A.	For which no management decision has been made by the commencement of the reporting period	18	\$6,535,106	\$1,598,571
B.	That were issued during the reporting period	14	\$1,100,570	\$255,561
C.	Adjustment related to prior recommendations	0	\$0	\$0
Subtotal of A+B+C		32	\$7,635,676	\$1,854,132
D.	For which a management decision was made during the reporting period	2	\$42,174	\$4,808
	i. Dollar value of disallowed costs	\$0	\$42,174	N/A
	ii. Dollar value of costs not disallowed	\$0	\$0	N/A
E.	For which no management decision had been made by the end of the reporting period	30	\$7,593,502	\$1,849,324
F.	For which no management decision was made within 6 months of issuance	17	\$6,501,955	\$1,598,571

¹⁶ Unsupported costs are a subset of questioned costs.



Table 5. Reports Issued (by OIG and Independent Public Accounting Firms)

Report No./ Date Issued	Title	Questioned Costs	Un-supported Costs	Better Use of Funds	No. of Recs
21-1-007 4/30/21	Performance Audit of Incurred Costs – Clemson University	\$276,440	\$0	\$0	35
N/A 5/10/21	Fiscal Year 2020 PIIA/IPERA Letter	\$0	\$0	\$0	0
21-1-008 5/13/21	Performance Audit of Incurred Costs – Emory University	\$89,884	\$3,110	\$0	8
21-1-009 5/13/21	Performance Audit of the Implementation of OMB COVID-19 Flexibilities – University of New Mexico	\$20,965	\$0	\$0	9
21-1-010 5/18/21	Performance Audit of the Implementation of OMB COVID-19 Flexibilities – State University of New York at Stony Brook	\$31,341	\$20,530	\$0	10
21-1-011 5/19/21	Performance Audit of the Implementation of OMB COVID-19 Flexibilities – Florida International University	\$22,144		\$0	9
21-1-012 5/25/21	Performance Audit of the Implementation of OMB COVID-19 Flexibilities – Florida State University	\$9,023	\$4,808	\$0	8
21-1-013 5/25/21	Performance Audit of the Implementation of OMB COVID-19 Flexibilities – University of Wisconsin-Madison	\$48,998	\$36,650	\$0	8
21-1-014 5/26/21	Performance Audit of the Implementation of OMB COVID-19 Flexibilities – California Institute of Technology	\$50,721	\$0	\$0	11
21-1-015 5/27/21	Performance Audit of the Implementation of OMB COVID-19 Flexibilities – University of Central Florida	\$294	\$0	\$0	7
21-1-016 6/29/21	Performance Audit of Incurred Costs – University of South Carolina	\$140,360	\$25,277	\$0	8
21-1-017 7/20/21	Performance Audit of Incurred Costs – Tennessee State University	\$155,432	\$122,736	\$0	13
21-1-018 8/2/21	Performance Audit of the Implementation of OMB COVID-19 Flexibilities – University of Michigan	\$11,499	\$0	\$0	3



21-1-019 8/30/21	Performance Audit of Incurred Costs – University of Pittsburgh	\$106,659	\$42,450	\$0	12
21-1-020 9/29/21	Performance Audit of Incurred Costs – University of California San Francisco	\$136,810	\$0	\$0	20
21-2-003 6/23/21	Audit of the National Science Board’s Compliance with the Government in the Sunshine Act from 2018–2020	\$0	\$0	\$0	1
21-2-004 8/13/21	Audit of NSF’s Established Program to Stimulate Competitive Research Awards	\$0	\$0	\$0	6
21-6-003 8/3/21	Capstone Report: Observations on the OMB COVID-19 Flexibilities	\$0	\$0	\$0	0
21-6-004 9/28/21	NSF Directed Funding to Vendor Without Following Competition Rules	\$0	\$0	\$0	1
Total	19 Reports	\$1,100,570	\$255,561	\$0	169

Table 6. Reports Issued before April 1, 2021¹⁷ with Unimplemented Recommendations as of September 30, 2021 (Summary Table)

Year	Number of Reports with Unimplemented Recommendations	Number of Unimplemented Recommendations	Dollar Value of Aggregate Potential Cost Savings ¹⁸
2017	1	1	N/A
2019	9	113	\$1,964,008
2020	12	0	\$0
2021	6	85	\$2,613,292
Total	28	199	\$4,577,300

¹⁷ NSF has either provided comments or requested and received an extension on draft reports of internal engagements within 60 days of receipt. For external audits, awardees (not NSF) are requested to comment on draft reports within 30 days. NSF must resolve reports within 6 months of issuance. All reports not resolved within that time frame are listed in Table 7.

¹⁸ Aggregate potential savings are “questioned costs” if the recommendations have not been resolved, and “sustained costs” if the recommendations have been resolved.



Table 7. Reports Issued before April 1, 2021, for which No Management Decision Has Been Made by September 30, 2021, Including the Aggregate Potential Cost Savings of Those Recommendations (Detailed Table)¹⁹

Report No./ Date Issued	Topic/Type of Audit	No. of Recs without Mgmt. Decision	Why Mgmt. Decision Has Not Been Made	Desired Timetable for Mgmt. Decision	Aggregate Potential Cost Savings
19-1-008 4/17/19	University of Utah Incurred Cost Audit	12	Additional information from awardee needed to finalize management decisions.	12/31/21	\$42,157
19-1-010 5/2/19	University of Maryland College Park Incurred Cost Audit	19	Resolution re-assigned due to departure of previously assigned staff.	1/31/22	\$357,108
19-1-011 4/30/19	University of Delaware Incurred Cost Audit	12	Draft management decisions require additional edit and review before finalizing.	12/31/22	\$426,667
19-1-013 5/1/19	University of Pennsylvania Incurred Cost Audit	18	Resolution delayed due to university non-responsiveness and departure of assigned staff.	11/30/21	\$265,957
19-1-016 8/8/19	Ohio State University Incurred Cost Audit	22	Resolution re-assigned due to departure of previously assigned staff.	3/31/22	\$502,587
19-1-017 9/13/19	Oregon State University Incurred Cost Audit	24	Draft management decisions require additional review before finalizing.	12/31/21	\$369,532

¹⁹ 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 6 includes additional reports/recommendations because it includes the reports with unresolved recommendations shown in Table 7, plus reports with resolved recommendations that have not yet been implemented.



20-1-001 1/10/20	University of Colorado Boulder Incurred Cost Audit	15	Resolution delayed by diminished capacity and transition of staff during pandemic.	3/31/22	\$79,831
20-1-004 7/13/20	University of North Carolina at Chapel Hill Incurred Cost Audit	43	Resolution delayed by diminished capacity and transition of staff during pandemic.	3/31/22	\$744,671
20-1-005 7/23/20	University of Houston Incurred Cost Audit	30	Resolution delayed by diminished capacity and transition of staff during pandemic.	3/31/22	\$133,305
20-1-006 8/5/20	Temple University Performance Audit	4	Resolution delayed by diminished capacity and transition of staff during pandemic.	11/30/21	\$5,969
20-1-007 8/11/20	Yale University Incurred Cost Audit	36	Resolution delayed by diminished capacity and transition of staff during pandemic.	3/31/22	\$251,973
20-1-008 8/31/20	Duke University Incurred Cost Audit	48	Resolution delayed by diminished capacity and transition of staff during pandemic.	3/31/22	\$708,906
21-1-001 01/07/21	University of Kansas Research Center, Inc. Incurred Cost Audit of EPSCoR Awards	11	Resolution delayed by diminished capacity and transition of staff during pandemic.	3/31/22	\$1,550,054
21-1-002 12/17/20	Texas A&M Incurred Cost Audit	24	Resolution delayed by diminished capacity and transition of staff during pandemic.	3/31/22	\$137,558
21-1-003 1/13/21	University of Wyoming Incurred Cost Audit of EPSCoR Awards	15	Resolution delayed by diminished capacity and transition of staff during pandemic.	3/31/22	\$256,351



21-1-004 1/15/21	University of Florida Incurred Cost Audit	17	Resolution delayed by diminished capacity and transition of staff during pandemic.	3/31/22	\$640,723
21-1-005 3/31/2021	University of Alaska Fairbanks Audit of the Implementation of OMB COVID-19 Flexibilities	10	Resolution delayed by diminished capacity and transition of staff during pandemic.	12/31/21	\$28,606
Total	17 reports	360			\$6,501,955



About the National Science Foundation

NSF is an independent federal agency created by Congress in 1950 “[t]o promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes” (Pub. L. No. 81-507). NSF leadership has two major components: a director who provides oversight of 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 to establish the overall policies of the Foundation.

With a budget of approximately \$8.3 billion (FY 2020), NSF is the funding source for approximately 25 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 promotes effectiveness, efficiency, and economy in administering the Foundation’s programs; detects and prevents fraud, waste, abuse, and whistleblower reprisal within NSF or by individuals who receive NSF funding; and identifies and helps to resolve cases of research misconduct. NSF 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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