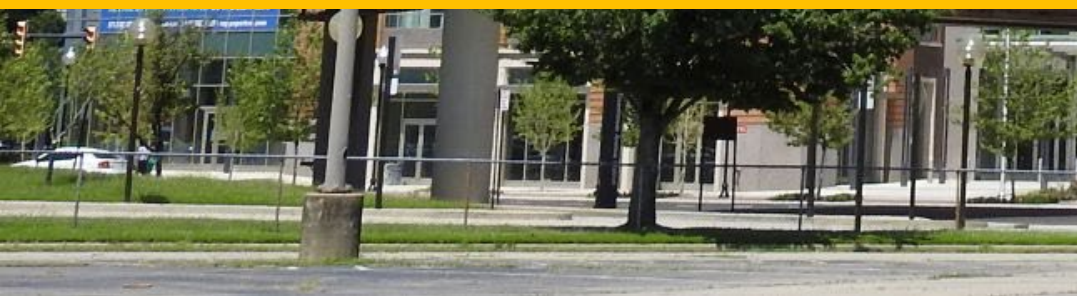




National Science Foundation
Office of Inspector General



Office of Audits Annual Work Plan Fiscal Year 2021



AT A GLANCE

Office of Audits Annual Work Plan Fiscal Year 2021
November 25, 2020

WHY WE CREATED THIS WORK PLAN

The *Inspector General Act of 1978*, as amended, authorizes an Office of Inspector General for the National Science Foundation. By statute, we conduct and supervise independent audits and investigations relating to agency programs and operations and recommend policies that promote effectiveness and efficiency and prevent and detect fraud, waste, and abuse. This work plan lists our required and planned discretionary projects for fiscal year 2021. However, we may modify the plan to address higher priority issues that may arise or to respond to requests from Congress or other stakeholders.

PLANNED AUDITS

Required projects for FY 2021 include:

- Audit of NSF's financial statements
- Audit of NSF's information security program
- Audit of NSF's compliance with the *Digital Accountability and Transparency Act*
- Assessment of NSF's compliance with the *Improper Payments Elimination and Recovery Act*
- Audit of the National Science Board's compliance with the *Sunshine Act*
- Review of NSF's enhanced personnel security program

Ongoing or planned discretionary projects for FY 2021 include:

- Audit of NSF's oversight of Established Program to Stimulate Competitive Research (EPSCoR) awards
- Audits of incurred costs on EPSCoR awards
- Audit of NSF's controls over Graduate Research Fellowship Program (GRFP) funding
- Reviews of three GRFP award recipients' controls
- Audit of divestment of NSF's major facilities
- Audit of mid-scale projects
- Audit of NSF's process for evaluating merit review panelists
- Audit of the vetting process for NSF rotators serving under the *Intergovernmental Personnel Act*
- Reviews of COVID-19-related issues

We will also conduct audits of NSF award recipients and reviews of the quality of single audits. Additionally, we will monitor projects as potential future audits.

FOR MORE INFORMATION, PLEASE CONTACT US AT OIGPUBLICAFFAIRS@NSF.GOV.

ABOUT THE OFFICE OF INSPECTOR GENERAL

We promote effectiveness, efficiency, and economy in administering the Foundation's programs; detect and prevent fraud, waste, and abuse within NSF or by individuals who receive NSF funding; and identify and help 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 National Science Board and Congress, the Office is organizationally independent from the National Science Foundation.

Our work is divided into two functional areas: 1) audits, which assess the functionality of systems, determine compliance with financial standards and grant requirements, and identify ways to improve systems and operations; and 2) investigations, which address allegations of serious wrongdoing, such as violations of criminal or civil law or fabrication of data and plagiarism in NSF-funded research.

ABOUT THIS PLAN

We conduct audits mandated by legislation, as well as discretionary, risk-based audits of NSF's contracts, cooperative agreements, and grants to universities and other institutions. We also conduct internal audits of NSF's programs to identify ways to improve systems and operations. These audits help ensure that financial, administrative, and programmatic activities are conducted effectively, efficiently, and in compliance with applicable laws, rules, and regulations. This work plan lists our required and planned discretionary projects for fiscal year 2021.

REQUIRED AUDITS AND REVIEWS

We are required by statute to conduct the following audits and reviews in FY 2021:

- Audit of NSF's compliance with the *Digital Accountability and Transparency Act of 2014* (DATA Act, Pub. L. 113-101).
- Assessment of NSF's compliance with the *Improper Payments Elimination and Recovery Act of 2010* (IPERA, Pub. L. No. 111-204, as amended).
- Audit of the National Science Board's compliance with the *Government in the Sunshine Act of 1976* (Pub. L. 94-409).¹
- Review of NSF's enhanced personnel security program, as required by the *Consolidated Appropriations Act of 2016* (Pub. L. 114-113, as amended by Pub. L. 116-92), subject to publication of review standards.

¹ If proposed legislation is signed into law, we may be required instead to conduct a risk assessment every 3 years to determine if an audit is necessary. Thus, the Sunshine Act audit of the NSB in FY 2021 could be replaced by a risk assessment to determine if an audit is necessary.

In addition, we will oversee the audits of NSF's annual financial statements and NSF's information security program as required by the *Federal Information Security Modernization Act of 2014* (FISMA, Pub. L. No. 113-283).

DISCRETIONARY AUDITS AND REVIEWS

Our discretionary audit plan is flexible, and we may need to modify it to address higher priority issues that arise during the year or to respond to requests from Congress or other stakeholders. In our planned audits, we will focus both internally on NSF management and externally on how award recipients, including institutions and researchers, use NSF funds. Based on risk, we have selected the following discretionary audits for FY 2021, some of which we have already begun.

Audits of NSF's Oversight of Established Program to Stimulate Competitive Research (EPSCoR) Awards and of Costs Claimed by Three EPSCoR Award Recipients *(in progress)*

NSF provides Research Infrastructure Improvement awards to targeted jurisdictions through its EPSCoR program. EPSCoR's mission is to develop research competitiveness in these jurisdictions by strengthening science, technology, engineering, and math (STEM) capability and capacity so that they may become recognized contributors to national and global STEM research. Our audit will determine whether NSF is ensuring award recipients comply with NSF and Federal requirements in the administration of EPSCoR awards. We also are conducting incurred cost audits of three EPSCoR award recipients to determine if costs claimed on these awards were allowable, allocable, reasonable, and in conformity with NSF award terms and conditions and applicable Federal requirements.

Audit of NSF's Control over Graduate Research Fellowship Program Funding *(in progress)*

The Graduate Research Fellowship Program (GRFP) supports outstanding graduate students in NSF-supported STEM disciplines who are pursuing research-based master's and doctoral degrees at accredited institutions. NSF provides funding for the institutions to pay each fellow a 3-year annual stipend of \$34,000. In addition, the sponsoring institutions receive annual allowances of \$12,000 from NSF to cover each fellow's tuition and fees. We have initiated an audit to determine whether NSF properly distributes, monitors, and accounts for GRFP funding. We also are reviewing GRFP administration at three institutions to examine implementation of program policies and procedures at the recipient level.

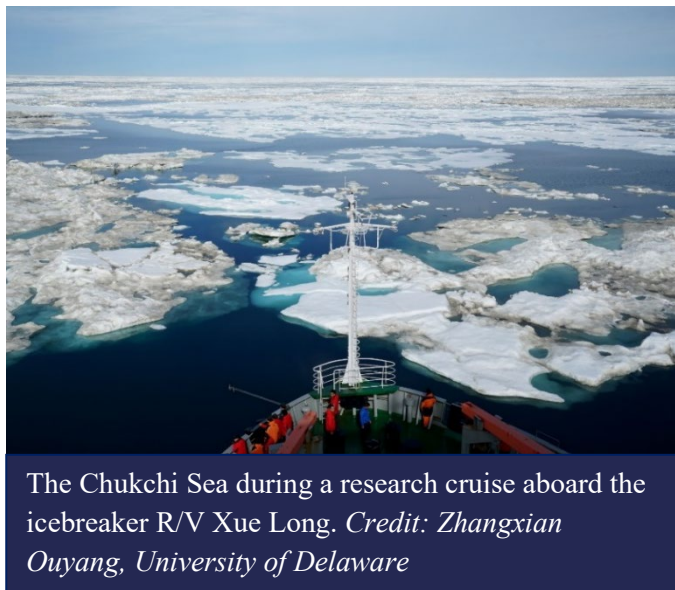
Audit of NSF's Divestment of Major Facilities

NSF funds the construction, management, and operation of major multi-user research facilities (major facilities), which are shared-use infrastructure accessible to a broad community of researchers and educators. NSF's major facilities typically have construction costs greater than \$70

million,² with total construction costs ranging from one hundred to several hundred million dollars over a multi-year period. Once the award recipient completes construction, NSF facilities may operate for 20 to 40 years with annual operations and maintenance budgets ranging between 6 and 10 percent of the original construction cost. The *American Innovation and Competitiveness Act* (Pub. L. No. 114–329) requires NSF to address divestment as part of the lifecycle plans for its major facilities. We will assess the adequacy of NSF’s processes for identifying, planning for, and managing divestment of its major facilities.

Audit of Mid-Scale Projects

In its FY 2021 Budget Request, NSF requested more than \$97 million for mid-scale projects costing between \$6 and \$100 million. These projects include research instrumentation, equipment, and upgrades to major research facilities or other research infrastructure investments. In FY 2021, we may review management requirements in mid-scale solicitations, controls for mid-scale projects, and training and experience of NSF staff responsible for making and overseeing mid-scale awards.



Audit of NSF’s Process for Evaluating Merit Review Panelists

NSF uses outside experts, called panel reviewers, to help determine which proposals to fund. We will assess whether NSF’s process for vetting merit review panelists is sufficient to prevent and detect potential conflicts of interest and undisclosed foreign affiliations.

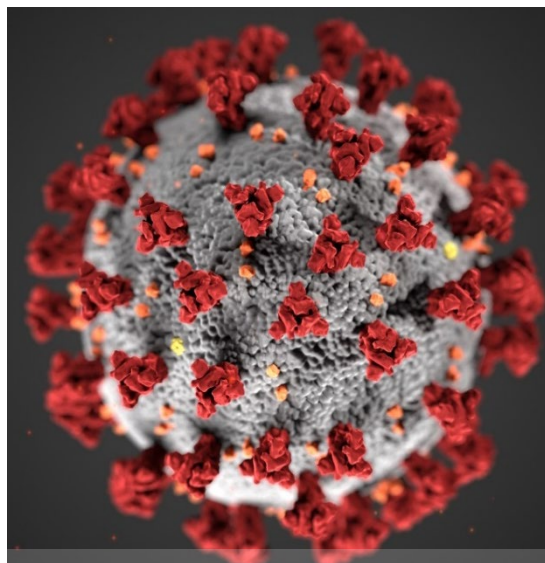
Audit of NSF’s Vetting Process for IPAs (in progress)

NSF draws scientists, engineers, and educators from academia, industry, or other eligible organizations on rotational assignment to supplement its workforce under the *Intergovernmental Personnel Act of 1970* (Pub. L. No. 91-648). We have initiated an audit to determine the adequacy of NSF’s processes for vetting IPAs.

² According to NSF’s FY 2021 Budget Request, the lower limit of major facilities’ costs in the future is expected to be \$100 million.

Reviews of COVID-19-Related Issues *(in progress)*

COVID-19-related risks to NSF's active portfolio, which exceeded \$33 billion in FY 2020, include disruption of science and construction activities, financial challenges, and health and safety concerns. In response to a Congressional request, we are reviewing NSF's plans and actions to return staff to its headquarters building. Additionally, we are conducting COVID-19-related reviews to assess (1) recipients' use of award flexibilities that the Office of Management and Budget provided to Federal grantees during the ongoing pandemic, and (2) NSF's high-level strategy for identifying and responding to risks and impacts of COVID-19 on both the agency and its recipients. We may initiate other COVID-19 related audits or reviews throughout the year, as necessary.



An illustration of ultrastructural morphology exhibited by coronaviruses.
Credit: Alissa Eckert, MS; Dan Higgins, MAM

Audits of NSF Award Recipients

We will continue to audit NSF award recipients at various universities, non-profits, and for-profit entities to detect improper spending or noncompliance with Federal and NSF requirements. We will conduct some of the audits, and independent public accounting firms with whom we contract will conduct the rest. The audits may focus on areas such as internal controls, accounting systems, or incurred costs. We also will continue Compliance Analytics Desk Audits, in which we focus on smaller entities for which regular audits are not cost effective.

Reviews of the Quality of Single Audits

Award recipients that spend \$750,000 or more of Federal funds in a year are required to obtain a single audit, which is an important oversight tool. We will continue to review the quality of single audits of NSF award recipients for which NSF has audit cognizance or oversight — defined generally as those institutions that receive the majority of their Federal funding from NSF. We will also review other award recipients when we have concerns regarding the NSF-related information contained in their single audit reports. The purpose of our reviews is to determine whether the audits comply with Federal requirements and professional audit standards. In FY 2021, we plan to conduct desk reviews of approximately 100 single audit report packages and conduct quality control reviews of 2 single audits.

PROJECTS WE ARE MONITORING

Pending additional background research and resource availability, we will monitor the following projects as potential future audits.

Major Facilities Under Construction

NSF reports five major facilities are under construction:

- Antarctic Infrastructure Modernization for Science
- Daniel K. Inouye Solar Telescope
- High-Luminosity Large Hadron Collider
- Regional Class Research Vessel
- Vera C. Rubin Observatory (formerly the Large Synoptic Survey Telescope)

All five projects have been adversely impacted by COVID-19. In FY 2021, we plan to monitor construction activities (including changes to schedule and costs) as NSF manages these projects in a pandemic-impacted environment.

Decommissioning of Telescope at Arecibo Observatory

Since August 2020, we have monitored NSF's response to two unexpected cable breaks that damaged the 57-year-old telescope at Arecibo Observatory in Puerto Rico. In November 2020, NSF announced its decision to begin plans to decommission the telescope after reviewing engineering assessments that determined workers could not safely stabilize it. We will continue monitoring NSF's decommissioning of the telescope and efforts to preserve the remaining infrastructure at Arecibo Observatory for future research and education missions.



A binary black hole merger likely produced gravitational waves equal to the energy of eight suns. Credit: Mark Myers, ARC Centre of Excellence for Gravitational Wave Discovery (OzGrav)/Swinburne University

National Center for Atmospheric Research

The National Center for Atmospheric Research (NCAR) is a Federally Funded Research and Development Center sponsored by NSF and managed by the University Corporation for Atmospheric Research (UCAR). As of August 2020, UCAR had \$1.5 billion total authorized NSF funding, making it the recipient of the second-largest dollar amount of NSF awards. NSF provided funding for the management and operation of NCAR with a cooperative support agreement issued in 2008, which was renewed through September 30, 2018, and subsequently extended to September 30, 2021. Following an open re-competition and NSF review and authorization, NSF issued a successor award, effective October 1, 2018. Given that NCAR has been adversely impacted

by COVID-19, the large amount of unliquidated funds on the 2008 award, and the existence of the open 2018 successor award, we will continue to monitor the spend down of the 2008 award, currently due to expire September 30, 2021.

NSF's Implementation of Requirements in the *American Innovation and Competitiveness Act*

According to the 2017 *American Innovation and Competitiveness Act* (Pub. L. No. 114–329), NSF must brief Congress periodically on its progress in improving oversight of its major facilities. NSF also must report the costs associated with employing temporary personnel (rotators), its efforts to control those costs, and its response to our recommendations to reduce these costs. In addition, NSF must report to Congress any change in NSF's merit review process. In FY 2021, we will continue to monitor NSF's compliance with the Act.

Enterprise Risk Management and OMB Circular A-123

In 2016, the Office of Management and Budget updated Circular A-123, *Management's Responsibility for Internal Control*, by requiring Federal agencies to implement an Enterprise Risk Management (ERM) capability. NSF has currently implemented ERM to provide NSF's actions to address our annual list of management challenges for NSF. Circular A-123 also requires agencies to integrate internal control functions and risk management. As part of that requirement, NSF is investigating the use of emerging technologies such as blockchain to replace current financial accounting methods. In FY 2021, we will monitor NSF's development of ERM capabilities and its plans for the use of emerging technologies. We will also monitor NSF's actions to address risks currently beyond the scope of the agency's ERM. These include assessing the risk of — and considering mitigation strategies for — disruptive events, both anticipated and unanticipated.



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