

U N I T E D S T A T E S  
National Science Foundation

NSF

**FY 2014**

**Agency Financial Report**

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## **THE NSF STATUTORY MISSION**

**To promote the progress of science; to advance the national health, prosperity, and welfare;  
and to secure the national defense; and for other purposes.**

*—From The National Science Foundation Act of 1950 (P.L. 81-507)*



## **THE NSF VISION**

**A Nation that creates and exploits new concepts in science and engineering  
and provides global leadership in research and education.**

*—From “Investing in Science, Engineering, and Education for the Nation’s Future”  
NSF Strategic Plan for 2014-2018*



## About This Report

For FY 2014, the National Science Foundation (NSF) is producing three reports to provide financial management and program performance information to demonstrate accountability to our stakeholders and the American public. These reports are produced in accordance with the Office of Management and Budget (OMB) Circular A-136, *Financial Reporting Requirements*, and meet the requirements of the CFO Act, as amended by the Government Management Reform Act of 1994, the Federal Managers Financial Integrity Act of 1982, the Reports Consolidation Act of 2000, and the GPRA Modernization Act of 2010. All three reports are available on NSF’s website at [www.nsf.gov/about/performance](http://www.nsf.gov/about/performance).

- This report, the **Agency Financial Report (AFR)**, focuses on financial management and accountability. It includes the results of NSF’s annual financial statement audit, management’s assurance statement, the NSF Inspector General’s (IG) memorandum on the agency’s FY 2015 management challenges, as well as management’s report on the progress made on the management challenges identified by the IG for FY 2014. The AFR also includes a brief discussion of the agency’s performance management framework.
- The **Annual Performance Report (APR)** will provide information on the progress NSF has made toward achieving its goals and objectives as described in the agency’s strategic plan and Annual Performance Plan, including the strategic objectives, performance goals, and Agency Priority Goals. The **APR** will be included in NSF’s *FY 2016 Budget Request to Congress*.
- NSF’s **Performance and Financial Highlights** report summarizes key financial and performance information from the **AFR** and **APR**.

For copies of these reports, please send a request to [accounta@nsf.gov](mailto:accounta@nsf.gov). We welcome your suggestions on how we can make these reports more informative.

| NSF by the Numbers |  |
|--------------------|--|
| \$7.2 billion      | FY 2014 Appropriations (does not include mandatory accounts)   |
| 1,826              | Colleges, universities, and other institutions receiving NSF funding in FY 2014  |
| 48,100             | Proposals evaluated in FY 2014 through a competitive merit review process  |
| 11,000             | Competitive awards funded in FY 2014   |
| 225,800            | Proposal reviews conducted in FY 2014  |
| 300,900            | Estimated number of people NSF supported directly in FY 2014 (researchers, postdoctoral fellows, trainees, teachers, and students) |
| 49,800             | Students supported by NSF Graduate Research Fellowships since 1952   |

# NATIONAL SCIENCE FOUNDATION FY 2014 Agency Financial Report

[www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf15002](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf15002)

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## A MESSAGE FROM THE DIRECTOR



*Credit: Sandy Schaeffer*

The National Science Foundation (NSF) is pleased to issue its Agency Financial Report for fiscal year (FY) 2014. Having begun my tenure as NSF Director this past April, it is an added pleasure for me to present this report for the first time.

NSF serves the national interest, as stated by NSF's mission to promote the progress of science, to advance the national health, prosperity and welfare, or to secure the national defense. We achieve this mission by funding research and education in nonbiomedical science and engineering at U.S. colleges and universities. Among the federal agencies that support basic research, NSF is responsible for strengthening the health of U.S. science and engineering over the broadest range of disciplines.

NSF's research and high-tech workforce development programs help lay the foundation for economic growth by building an innovation economy and educating globally-competitive American workers. By advancing the frontiers of science and engineering, our nation can develop the knowledge and innovative technologies needed to address the challenges we face. For more than 60 years, NSF's investments in science and engineering have led to important innovations that have spurred economic prosperity, increased our quality of life, and enhanced national security.

NSF supports core research activities both within and across disciplinary boundaries and activities that address emerging areas and national priorities. NSF supports creative people and great ideas—214 Nobel Prize winners have received NSF support during some point in their careers, including two in 2014, William Moerner in chemistry and Jean Tirole in economics.

In 2014, breakthrough research supported by NSF accessed previously unseen phenomena. These included the motion of a single molecule in real time and neutrinos from the sun's core. Researchers looking skyward produced maps of the Milky Way's interstellar material and found the smallest known galaxy harboring a supermassive black hole. Those focused on Planet Earth identified two new dinosaur species and found that bird migrations follow areas of new plant growth—a "green wave" of travel. Scientists also developed oral compounds that protect brain cells after traumatic injury, rapidly sequenced and analyzed 99+ Ebola virus genomes, and created the world's largest DNA origami (nanoscale folding of DNA), with applications ranging from drug delivery to electronics.

As NSF in 2014 continued to contribute significantly to the Administration's Brain Research through Advancing Innovative Neurotechnologies initiative (BRAIN), NSF-supported researchers made advances in other large arenas as well, including cloud computing and data-driven discovery. Researchers also advanced driverless car technology, worked to make food banks more efficient, and developed a variety of useful smartphone apps, including one that identifies jaundice in newborns. People everywhere saw the

power of scientific research during the World Cup, when a paraplegic man wearing a mind-controlled robotic exoskeleton kicked off the event. The technology may one day replace wheelchairs, and was built on a foundation of neuroscience research funded by NSF.

NSF's overall performance remained strong in FY 2014, as the agency reviewed 48,000 competitive proposals and funded 11,000 new awards to 1,826 institutions in 50 states, the District of Columbia, and 4 U.S. territories in FY 2014. This report also contains a brief discussion of results for FY 2014 under the Government Performance and Results Act (GPRA). The full report on NSF's performance management process and the complete results of our FY 2014 GPRA annual goals will be included in NSF's *Annual Performance Report* as part of NSF's *FY 2016 Budget Request to Congress*. In addition, in keeping with government-wide requirements, NSF's GPRA data undergo a rigorous verification and validation review by an independent, external management consultant based on guidance from the U.S. Government Accountability Office.

Underlying NSF's programmatic activities is a commitment to transparency and accountability to ensure sound stewardship of the public funds for which we are entrusted. In October 2014, NSF successfully launched iTRAK, NSF's new financial accounting system that will improve the efficiency of financial and business processes and enhance financial and business accountability.

I am pleased to report that NSF received its 17th consecutive unmodified opinion from an independent audit of its financial statements. The Independent Auditors' Report identified no material weaknesses. In addition, NSF can provide reasonable assurance that the agency is in substantial compliance with the Federal Managers Financial Integrity Act of 1982 and the Federal Financial Management Improvement Act of 1996, and that internal control over financial reporting is operating effectively to produce reliable financial reporting.

Thank you for your interest in the National Science Foundation.

***/s/***  
**FRANCE A. CÓRDOVA**

December 15, 2014



INSE

Chapter 1

**Management's Discussion  
and Analysis**



## Agency Overview

### Mission and Vision

The mission of the National Science Foundation (NSF) was established by Congress in the legislation that created the agency: “To promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense; and for other purposes.”<sup>1</sup> Over the past 64 years NSF’s investments have advanced the nation’s prosperity and have become indispensable to our long-term economic health and well-being. Discoveries made possible through NSF’s investments in basic research in science and engineering (S&E) have enhanced the nation’s “innovation ecosystem”—an exponentially growing interdisciplinary mix of ideas and techniques, together with a highly trained S&E workforce capable of advancing the frontiers of science both by recognizing societal need and imagining possibilities.<sup>2</sup>

These discoveries include Global Positioning System (GPS), the internet and web browsers, Doppler radar, and medical diagnostic and therapeutic technologies. In 2014, NSF-supported scientists developed oral compounds that protect brain cells after traumatic injury; rapidly sequenced and analyzed 99+ Ebola virus genomes; and created the world’s largest DNA origami (nanoscale folding of DNA), with applications ranging from drug delivery to electronics. NSF-supported researchers also advanced driverless car technology and developed a variety of useful smartphone apps, including one that identifies jaundice in newborns. Other discoveries may have no apparent or near-term technological application but still contribute to the innovation knowledge base required to advance science. NSF’s mission affirms our commitment, through investment in these discoveries, to advance the frontiers of science and engineering, ensuring the sustained vigor of both fundamental research and the nation’s innovation ecosystem as a means to maintaining global leadership throughout the 21st century.<sup>3</sup>

**Bionic Suit:** The 2014 World Cup kickoff was like no other. A paraplegic volunteer did the ceremonial first kick, wearing an exoskeleton that took cues from his brain activity. The exoskeleton used computer algorithms to detect the brain signals of the kicker, who was wearing an EEG cap. The research began nearly 2 decades ago with an NSF grant to Duke University neurobiologist Miguel Nicolelis for research into how neurons in the cerebral cortex are involved in motor learning.



The exoskeleton's hydraulic pumps power the kicker forward.  
Image Credit: NSF

NSF’s vision is a nation that capitalizes on new concepts in science and engineering and provides global leadership in advancing research and education.<sup>4</sup> NSF is the funding source for 24 percent of all the federally supported basic scientific research conducted by America’s colleges and universities and this

<sup>1</sup> The National Science Foundation Act of 1950 (Public Law 81-507).

<sup>2</sup> *NSF Strategic Plan for 2014 – 2018: Investing in Science, Engineering, and Education for the Nation’s Future*, page 3; see [www.nsf.gov/pubs/2014/nsf14043/nsf14043.pdf](http://www.nsf.gov/pubs/2014/nsf14043/nsf14043.pdf).

<sup>3</sup> *Ibid.*

<sup>4</sup> *Ibid.*

share increases to nearly 60 percent when medical research supported by the National Institutes of Health is excluded.<sup>5</sup>

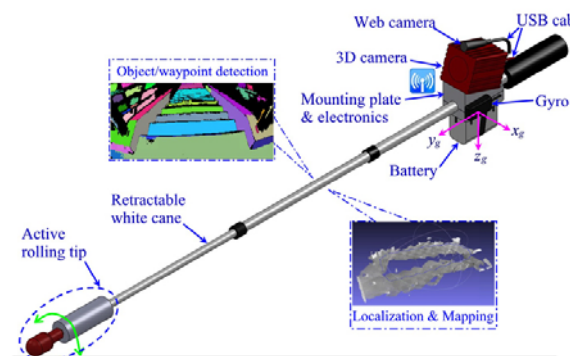
Overall, NSF achieves its mission and vision by making awards and managing portfolios of the highest quality that further our strategic goals, reflect national priorities, and keep the United States at the forefront of innovation and as a global leader of the 21st century science and engineering enterprise. In doing so, NSF pursues transformational work, new fields, and new theoretical paradigms, particularly through multidisciplinary mechanisms that reflect the increasingly interdisciplinary nature of modern science and engineering. We further understand that such complex, multi-faceted work will only be successful at meeting tomorrow's challenges if we simultaneously focus on the people component, leading to solutions to global challenges including economic competitiveness, information access, physical and cybersecurity, and many others.<sup>6</sup>

NSF's investment builds on its 6-decade legacy of supporting basic research and the innovation ecosystem by preparing scientists and engineers who are able to extend their focus beyond the laboratory and make contributions to the 21st century S&E enterprise from the frontiers of science. Our investments connect research and education to support the development of a world-class scientific workforce that can engage fully and contribute imaginatively in the 21st century, which increasingly relies on technology to meet challenges, identify possibilities, and leverage opportunities. We seamlessly integrate the education of future scientists, engineers, and educators into the broad portfolio of research that we support.

A cornerstone of NSF investment in the development of a world-class workforce is the Graduate Research Fellowship Program, which has funded nearly 49,800 Graduate Research Fellows since 1952. The ranks of NSF fellows include numerous individuals who have made transformative breakthroughs in science and engineering research. Many of them have become leaders in their chosen careers—450 have become members of the National Academies of Science or Engineering and 42 have been honored as Nobel laureates. In fact, 214 Nobel Prize winners have received NSF support at some point in their careers. These investments are a critical means by which NSF achieves its mission—identifying, nurturing, and investing in scientific potential.

NSF is dedicated to excellence, stewardship, and efficiency, always striving to excel as a federal agency, investing in priorities that will address key national challenges and promote innovation and economic growth. NSF uses three interrelated strategic goals to achieve the agency's mission: *Transform the*

**Seeing-Eye Robot:** At the University of Arkansas at Little Rock, researchers prototyped a robotic walking stick for the blind. It has cameras to detect objects in the way such as chairs and stairs, an audio system that communicates to the user, and a computer that remembers recent pathways and objects in them. This project was developed under the National Robotics Initiative, a multi-agency program led by NSF.



to the desired direction of travel. It is designed to detect the user's intent as well as 3-D objects and to build a working map for the user. Credit: Dr. Cang Ye, University of Arkansas at Little Rock.

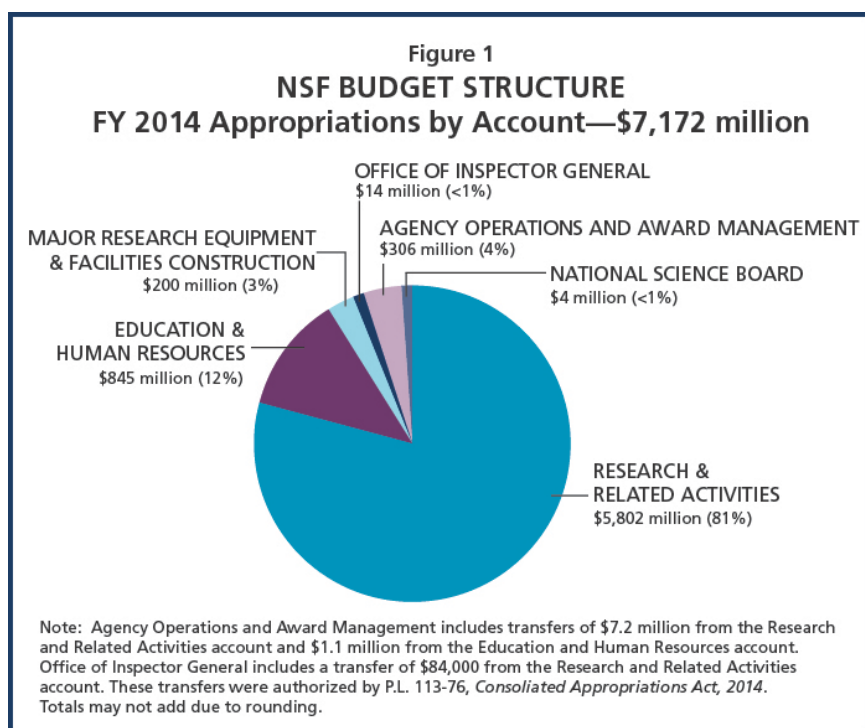
<sup>5</sup> NSF/National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development, FYs 2012–14; see [www.nsf.gov/statistics/nsf14316/content.cfm?pub\\_id=4418&id=2](http://www.nsf.gov/statistics/nsf14316/content.cfm?pub_id=4418&id=2).

<sup>6</sup> For more information, see *Exploring What Makes Us Human: NSF Social, Behavioral and Economic Sciences*, page 1 ([www.nsf.gov/about/congress/reports/sbe\\_research\\_2.pdf](http://www.nsf.gov/about/congress/reports/sbe_research_2.pdf)).

*Frontiers of Science and Engineering; Stimulate Innovation and Address Societal Needs through Research and Education; and Excel as a Federal Science Agency.* NSF's new strategic plan, *Investing in Science, Engineering, and Education for the Nation's Future, 2014–2018*, published in March 2014, is the agency's roadmap to achieving the NSF mission and vision. A discussion of the plan and NSF's strategic goals and objectives, as well as the agency's priority goals and cross-agency priority goals can be found in the Performance chapter, beginning on page I-10.

### Following the Money

NSF is funded primarily through six congressional appropriations, which totaled \$7,172 million in FY 2014 (Figure 1).<sup>7</sup> Budget authority in FY 2014 was 4.2 percent above the prior year FY 2013 budget authority of \$6,884 million. Research and Related Activities (R&RA), Education and Human Resources (EHR), and Major Research Equipment and Facilities Construction (MREFC) fund the agency's programmatic activities and accounted for 95 percent of NSF's total appropriations in FY 2014.



- R&RA, which supports basic research and education activities at the frontiers of science and engineering, including high-risk and transformative research, accounted for 81 percent of FY 2014 funding. The FY 2014 R&RA net funding of \$5,802 million was \$258 million or 4.7 percent above its prior year FY 2013 level of \$5,544 million. As authorized by P.L. 113-76, *Consolidated Appropriations Act, 2014*, a transfer of \$7.2 million was made from R&RA to the Agency Operations and Award Management (AOAM) account and a transfer of \$84,000 was made to the Office of Inspector General (OIG) account.

<sup>7</sup> In Figure 1, FY 2014 Appropriations by Account of \$7,172 million plus Donations (\$33 million) and H1-B Nonimmigrant Petitioner Receipts (\$128 million) equal Appropriations (Discretionary and Mandatory) of \$7,333 million as shown in the Statement of Budgetary Resources.

- EHR, which supports activities that ensure a diverse, competitive, and globally engaged U.S. science, technology, engineering, and mathematics (STEM) workforce and a scientifically literate citizenry is NSF's second largest appropriation, accounting for 12 percent of the agency's budget. The FY 2014 appropriation of \$845 million was \$12.1 million or 1.5 percent above its prior year level of \$833 million. A transfer of \$1.1 million was made from EHR to the AOAM account.
- The MREFC appropriation, which supports the construction of unique national research platforms and major research equipment that enable cutting-edge research, accounted for 3 percent of the agency's total appropriations. The FY 2014 funding of \$200 million is a \$3.8 million or 2.0 percent increase from its prior year FY 2013 level of \$196 million.
- The AOAM appropriation supports NSF's administrative and management activities and accounted for about 4 percent of the agency's FY 2014 funding. Transfers from the R&RA and EHR appropriations—\$7.2 million and \$1.1 million, respectively—boosted AOAM funding to \$306 million. This is a 4.3 percent increase (\$12.7 million) from its FY 2013 level of \$294 million.
- Separate appropriations support the activities of the OIG and National Science Board (NSB); each account for less than 1 percent of NSF's FY 2014 budget. The FY 2014 OIG appropriation of \$14.3 million is a \$1.1 million or 8.3 percent increase from its prior year FY 2013 appropriation of \$13.2 million. The OIG appropriation was bolstered by an \$84,000 transfer from the R&RA account. The NSB appropriation of \$4.3 million in FY 2014 is a \$175,000 or 4.3 percent increase from its prior year FY 2013 funding of \$4.1 million.

In FY 2014, 89 percent of research funding was allocated based on competitive merit review.<sup>8</sup> About 35,000 members of the science and engineering community participated in the merit review process as panelists and proposal reviewers.<sup>9</sup> Awards were made to 1,826 institutions in 50 states, the District of Columbia, and 4 U.S. territories. These institutions employ America's leading scientists, engineers, and educators and train the leading-edge innovators of tomorrow. In FY 2014, an estimated 300,000 people were directly involved in NSF programs and activities, receiving salaries, stipends, or participant support. Beyond these figures, NSF programs indirectly impact millions of people. These programs reach K-12 students and teachers, the general public, and researchers through activities including workshops; informal science activities such as museums,

**New Media Model:** "Plum Landing," created by WGBH in Boston, uses animations, games, a mobile app, videos, and hands-on activities to increase children's understanding of science and nature. Designed for kids aged 6 to 9, it introduces core science concepts and models key habits that scientists use when exploring the natural world. Since its debut last April, the website has garnered 8 million+ page views. Children also are exploring their environments—to date, they've submitted 70,000 photos and drawings.

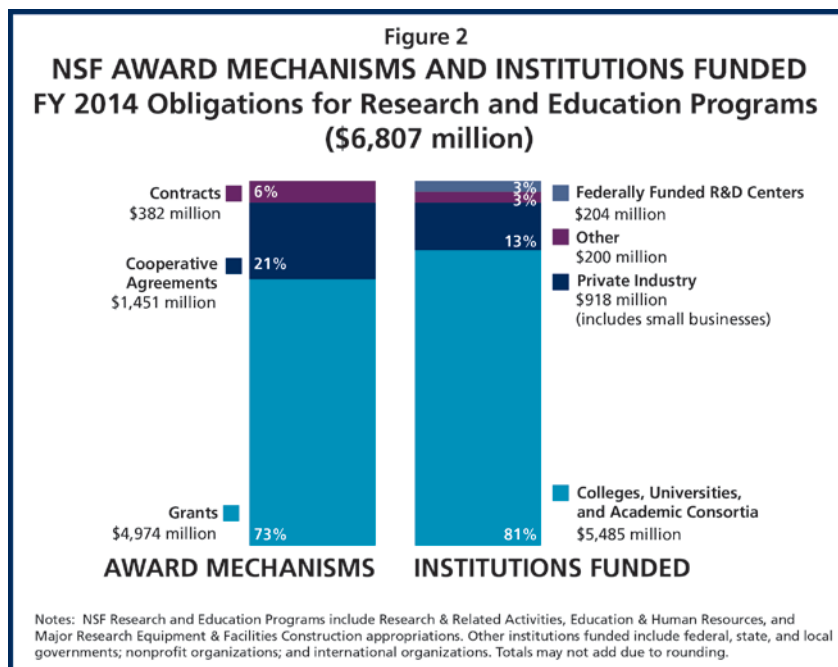


A girl takes a picture of a plant with the "Plum's Photo Hunt" app on her mobile phone. *Credit: © Bill Shribman.*

<sup>8</sup> NSF does not require merit review for certain kinds of proposals, including proposals for international travel grants and some conferences, symposia, and workshops.

<sup>9</sup> For more information about NSF's merit review process, see [www.nsf.gov/bfa/dias/policy/merit\\_review](http://www.nsf.gov/bfa/dias/policy/merit_review) and *Report to the National Science Board on the National Science Foundation's Merit Review Process FY 2013* (NSB-14-32) at [www.nsf.gov/nsb/publications/pub\\_summ.jsp?ods\\_key=nsb1432](http://www.nsf.gov/nsb/publications/pub_summ.jsp?ods_key=nsb1432).

television, videos, and journals; outreach efforts; and dissemination of improved curriculum and teaching methods.



In FY 2014, NSF funded 10,981 new awards, mostly to academic institutions. As shown in Figure 2, 81 percent of support for research and education programs (\$5,485 million) was to colleges, universities, and academic consortia. Private industry including small businesses accounted for 13 percent (\$918 million) and support to Federally Funded Research and Development (R&D) Centers accounted for 3 percent (\$204 million). Other recipients included federal, state, and local governments; nonprofit organizations; and international organizations. A small number of awards fund research in collaboration with other countries, which adds value to the U.S. scientific enterprise and maintains the U.S. leadership at the helm of the global scientific enterprise.

Most NSF awards (94 percent) were funded through grants or cooperative agreements (Figure 2). Grants can be funded either as standard awards, in which funding for the full duration of the project is provided in a single fiscal year, or as continuing awards, in which funding for a multi-year project is provided in increments. Cooperative agreements are used when the project requires substantial agency technical involvement during the project performance period (e.g., research centers, multi-use facilities). Contracts (procurement instruments) are used to acquire products, services, and studies (e.g., program evaluations) required primarily for NSF or other government use.

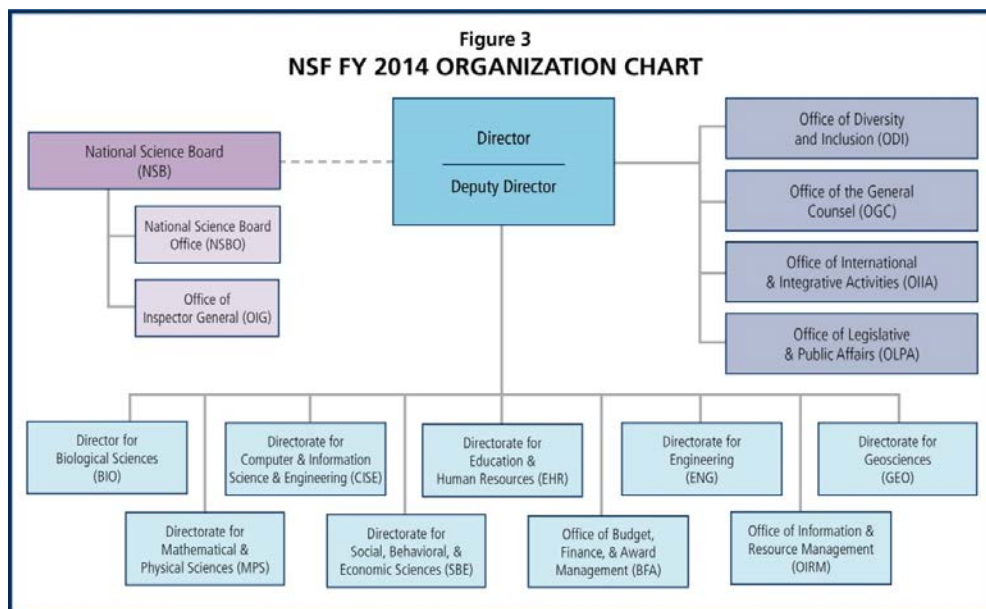
### Organizational Structure

NSF is an independent federal agency headed by a Director appointed by the President and confirmed by the U.S. Senate. On March 31, 2014, Dr. France A. Córdoba was sworn in as NSF's 14th Director.<sup>10</sup> A 25-member National Science Board (NSB) meets five times a year to establish the overall policies of the agency. NSB members are appointed by the President and are prominent contributors to the science and engineering research and education community.<sup>11</sup> The NSF Director is a member *ex officio* of the Board. Both the Director and the other NSB members serve 6-year terms. The NSF workforce includes nearly

<sup>10</sup> Dr. Córdoba's biography is available at [www.nsf.gov/news/speeches/cordova/cordova\\_bio.jsp](http://www.nsf.gov/news/speeches/cordova/cordova_bio.jsp).

<sup>11</sup> A list of the members of the National Science Board is available at [www.nsf.gov/nsb/members](http://www.nsf.gov/nsb/members).

1,400 permanent staff.<sup>12</sup> NSF also regularly recruits visiting scientists, engineers, and educators as rotators who work at NSF for up to four years.<sup>13</sup> The blend of permanent staff and rotators who infuse new talent and expertise into the agency is reflective of our core values and integral to effectuating NSF's mission to support the entire spectrum of science and engineering research and education at the frontier. As shown in Figure 3, NSF's organizational structure aligns with the major fields of science and engineering ([www.nsf.gov/staff/organizational\\_chart.pdf](http://www.nsf.gov/staff/organizational_chart.pdf)).



In addition to the agency's headquarters located in Arlington, Virginia, NSF maintains offices in Paris, Tokyo, and Beijing to facilitate its international activities and an office in Christchurch, New Zealand, to support the U.S. Antarctic Program (USAP). NSF is scheduled to relocate its headquarters from Arlington to Alexandria, Virginia in 2017.

### Management Challenges

For FY 2014, the OIG identified nine major management and performance challenges facing the agency: establishing accountability over large cooperative agreements, improving grant administration, strengthening contract administration, management of the U.S. Antarctic Program, moving NSF headquarters to a new building, managing programs and resources in times of budget austerity, ensuring proper stewardship of American Recovery and Reinvestment Act (ARRA) funds, encouraging the ethical conduct of research, and implementing a new financial management system.<sup>14</sup> Management's report on the significant activities undertaken in FY 2014 to address these challenges is included in this report as Appendix 3B. The report also discusses activities planned for FY 2015 and beyond. Some of the agency accomplishments in FY 2014 are highlighted below:

- **To establish accountability over large cooperative agreements:** NSF has continued to ensure that awardees of large construction projects were managing their risks and properly accounting for contingency. The agency has developed Standard Operating Guidance for staff to use when conducting cost analysis of construction cost estimates. NSF also makes use of audit services in

<sup>12</sup> Full-time equivalents

<sup>13</sup> As of September 30, 2014, temporary appointments included 179 under the Intergovernmental Personnel Act.

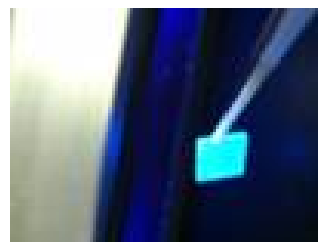
<sup>14</sup> The NSF Inspector General's Memorandum on Management Challenges for NSF in FY 2014 can be found in NSF's FY 2013 Agency Financial Report ([www.nsf.gov/pubs/2014/nsf14002/pdf/nsf14002.pdf](http://www.nsf.gov/pubs/2014/nsf14002/pdf/nsf14002.pdf)), Appendix 3A.

awarding and administering large facility-related cooperative agreements, and has drafted guidance on the use and management of contingency to be incorporated into the next revision of the Large Facilities Manual in FY 2015. In addition, NSF has developed Standard Operating Guidance setting forth a risk-based approach to determining the need for audit services prior to awarding large facility-related cooperative agreements; this guidance will be implemented for staff use in FY 2015.

- **To improve grant administration:** NSF has initiated streamlined processes for “Do Not Pay” results and improved implementation of internal controls in place to identify grantees requiring corrective action plan follow-up. With regard to the newly published OMB Uniform Guidance, NSF has evaluated the impact of the policy to ensure full agency support for its objectives of effectively focusing federal resources on performance and outcomes while simultaneously ensuring financial integrity of taxpayer dollars and reducing administrative burden for non-federal entities receiving federal awards. NSF has initiated upgrading of all relevant policies, procedures, and award terms and conditions. NSF will continue a strong program of management, oversight, and outreach to ensure that NSF awardees have implemented relevant policies, procedures, and systems to adequately document salaries, wages, and related costs.
- **To strengthen contract administration:** NSF has taken targeted steps to ensure that all accounting systems and Cost Accounting Standards (CAS) Disclosure Statements are determined adequate for all covered contracts, has actively pursued audit completion for required CAS Disclosure Statements and promptly reviewed and resolved any issues raised in such audits, and has reviewed the new USAP contractor’s transfer of the NSF contract to a different segment within the company and determined that it did not affect the NSF cost. The agency has also added supplemental guidance to the NSF Acquisition Manual to ensure Pre- and Post-Award Audits performed on NSF contracts are consistent with the terms of the Memorandum of Understanding with NSF-OIG, and established a process to follow in the NSF Acquisition Manual (see Section 2542.101-70). NSF has prepared “white papers” that outline a plan for resolving the audit findings to date on the Raytheon Antarctic Logistics Support Contract (RTSC Polar), and has completed Defense Contract Audit Agency (DCAA) final audits on the RTSC Polar contract and initiated prompt resolution of questioned costs.
- **To manage the U.S. Antarctic Program:** NSF has taken steps to implement the OIG-recommended changes to the internal tracking matrix for Blue Ribbon Panel (BRP) recommendations and provided status updates regarding the progress and feasibility of implementation. The Director has authorized proceeding to the conceptual design review phase for development of Antarctic Infrastructure Modernization for Science, a potential MREFC project to address the major infrastructure upgrades recommended by the BRP report for McMurdo and Palmer Stations.
- **To move NSF Headquarters to a new building:** NSF has managed design and engineering tasks in concert with the General Services Administration and the building owner to pursue NSF’s move completion by the lease date of December 30, 2016. More than 80 NSF staff design review meetings, workshops, and strategy sessions have been conducted. An exhaustive update of NSF’s 2-year-old

### Non-contact detection of explosive materials:

In research relevant to homeland security and antiterrorism efforts, Cornell University researchers created an ultrasensitive polymer that uses fluorescence to detect explosives not only on surfaces but in the air. Currently, to identify explosive ingredients, airport security officers run a swab over a suspected object prior to analysis.

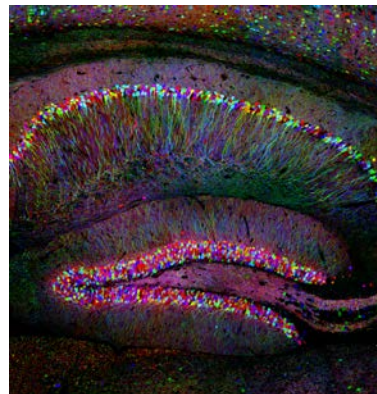


Glowing polymer goes dark when exposed to explosive vapors. Credit: Deepti Gopalakrishnan and William Dichtel.

Program of Requirements for the design of NSF's new space, inclusive of comprehensive information technology and electronic security specifications, furniture and equipment inventory and reuse analysis, and a paper records/files analysis have been completed. NSF has conducted floor studies and worked with the Architect of Record (AOR) on test fits of the new building and has modified the Program of Requirements to be more consistent with the interests expressed by both NSF management and American Federation of Government Employees (AFGE) Local 3403. The agency has also taken steps to ensure that effective working relationships and communications with NSF were established early in the process with all of the new headquarters stakeholders (GSA, City of Alexandria, owner's architect/engineering and construction teams, others). To plan for dual operations in Arlington and Alexandria, NSF has conducted two relocation planning meetings with agency operational units including information technology, facilities, meeting services, and human resources management. NSF has escalated efforts to educate and engage internal NSF stakeholders about the new headquarters, and has implemented a governance, evaluation, and recommendation structure for efficient decision-making involving senior executive staff, liaisons for each directorate, and a cross functional/organizational group. NSF has also participated in monthly Alexandria City Economic Development Partnership Board of Directors meetings to represent and address NSF's interests in the city's planning process; attended City of Alexandria permit and review board meetings with the AOR and project developer; and resumed regular meetings with the AFGE Local 3403 on project information, pre-decisional items, as well as impact and implementation issues.

- **To manage programs and resources in times of budget austerity:** NSF has worked to instill confidence by business review and process improvements in the following areas: Merit Review Business Practice—by investing in expanded training for moderators and leveraging virtual meeting technology; Travel—by instituting and realizing savings totaling \$8.4 million in FY 2014; Conferences—by continued adherence to policy (NSF Bulletin No. 12-19) to ensure that all conference costs are appropriate, necessary, and managed in a way that minimizes expenses; Printing—by continued development of a comprehensive Managed Print Services Strategy; and costs associated with the staff hired under the Intergovernmental Personnel Act (“IPAs”), as outlined in a corrective action plan—by conducting a formal analysis of IPA data, a discussion with the Federal Demonstration Partnership and internal focus groups with IPAs and managers of IPAs.
- **To ensure proper stewardship of ARRA funds:** NSF has successfully tracked expenditures for all active ARRA awards, facilitating closeout as appropriate, and continued advanced monitoring activities for all NSF awardees with additional risk points assigned to ARRA awards with waivers to expend funds beyond September 30, 2013. The agency continues to employ the ARRA review module as part of the advanced monitoring to ensure that all ARRA awardees have processes to effectively segregate

**Memory making and protein:** Researchers discovered that the Arc gene and its protein product, also called Arc, play an essential role in memory formation. One of tens of thousands of proteins in the brain, Arc is found in the brain's hippocampus region (the area involved in many forms of learning), and activates as memories form. Knowing how a healthy brain forms memories is an important step to understanding what goes wrong in a range of memory disorders including Alzheimer's disease and stroke.



A fluorescent imaging agent lights up the brain's hippocampus. Credit: Jean Livet, Institut de la Vision, Paris; Jeff Lichtman and Joshua Sanes, Harvard University.



financial information in their accounting systems, as well as report that information as required. ARRA recipient reporting requirements were repealed by law as of February 1, 2014. NSF's exemplary ARRA recipient reporting data quality review process ultimately resulted in an average reporting compliance rate of 99.65 percent for 18 quarters of recipient reporting.

- **To encourage the ethical conduct of research:** NSF launched a new ethics program to replace the Ethics Education in Science and Engineering Program. The new program, "Cultivating Cultures for Ethical STEM" (CCE STEM)," focuses on cultivating climates that expect and encourage academic and research integrity at all levels. NSF also awarded a 5-year project to the National Academies to expand the National Academy of Engineering's Online Ethics Center for Engineering and Science to include material relevant to all fields that NSF supports. This award included a large supplement to University of Delaware's Center for Science, Ethics, and Public Policy, to develop a cohort of international collaborators to collect new ideas and best practices from international sources about ethics and social responsibility in research and education, and expertise in developing policies and codes of ethics for STEM faculty, students, and practitioners.

**To implement a new financial management system (iTRAK):** NSF implemented its financial system modernization initiative successfully on schedule and within budget, beginning with engaging division directors across the agency to identify key staff to work with the iTRAK team and ensuring that the project schedule accounted for peak workload and seasonal cycles across the agency when key staff would be unavailable. Various steps were taken to ensure a smooth transition to the new financial accounting system including prioritizing iTRAK activities ahead of certain operational tasks; detailing key staff to the iTRAK project and bringing back former NSF staff as rehired annuitants to provide additional resources; implementing an outreach campaign across the agency to inform executives, managers, and staff of the business process changes necessary to implement iTRAK, including meetings and focus group sessions; engaging the iTRAK governance groups such as the iTRAK Executive Council and iTRAK Change Control Board to review changes to business processes and to assist in the outreach and communication of changed business processes; and conducting a series of Town Halls and widely disseminating information about critical dates and changes in procedures for FY 2014 year-end close. A rigorous training plan that included over 100 in-person training classes and six online courses was established, as was an iTRAK help desk to provide immediate, ongoing assistance as needed.

**Blue Waters:** One of the most powerful supercomputers in the world and a major advance in U.S. research infrastructure, Blue Waters enables researchers to tackle simulation problems in astronomy, physics, chemistry, engineering, and other fields that less powerful computing systems simply can't handle. Blue Waters also helps researchers drill down into massive quantities of data, a capability essential to realizing the promise of personalized medicine and understanding trends in massive datasets from environmental observations. Teams from across the nation will use Blue Waters to investigate a broad range of phenomena including the fundamental nature of matter and energy, the development of new materials, the effects of earthquakes, and the evolution of the universe.



As a petascale system, Blue Waters completes quadrillions (millions of billions) of calculations every second, delivering sustained performance of 1 petaflop. As a petascale data system, Blue Waters possesses 1.5 petabytes (PB) of memory, 26 PB of disk capacity and 300 PB of tape data capacity. *Image credit: NCSA/University of Illinois.*

## Performance

This discussion of NSF's FY 2014 performance management activities focuses on the agency's efforts related to the Government Performance and Results Act of 1993 (GPRA) and the GPRA Modernization Act of 2010,<sup>15</sup> and on the agency's workload and management metrics.

### FY 2014 Strategic Framework

NSF is subject to GPRA and the GPRA Modernization Act of 2010, as well as related performance reporting guidance issued by OMB.<sup>16</sup> In March 2014, NSF published a new Strategic Plan, *Investing in Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014 – 2018*.<sup>17</sup> It lays out the following strategic goals:

- The first mission-focused goal, *Transform the Frontiers of Science and Engineering*, derives from the first part of NSF's mission, "to promote the progress of science" in order to expand and explore the frontiers of human knowledge, to enhance the ability of the nation to meet the challenges it faces, and to create new paradigms and capabilities for scientific, technological, and (consequently) economic leadership in an increasingly fast-paced, competitive world.
- The second mission-focused goal, *Stimulate Innovation and Address Societal Needs Through Research and Education*, flows from the latter part of the NSF mission statement—"to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." Through targeted solicitations and core programs, NSF is able to focus the attention of the broader science and engineering community on fundamental aspects of high priority national challenges.
- The management-focused goal, *Excel as a Federal Science Agency*, directs that NSF will integrate mission, vision, and core values to efficiently and effectively execute its activities and provide the flexibility and agility required to meet the quickly evolving challenges associated with the first two strategic goals.

These three strategic goals are associated with seven specific objectives (Figure 4). Objectives are intended to be comprehensive of agency program activities. Progress toward these objectives is monitored in several ways—through annual performance goals (10 goals in FY 2014), agency priority goals (3 in FY 2014–FY 2015), and strategic reviews (see next section).

In addition to these strategic goals and objectives, which are intended to monitor agency performance against its entire mission, NSF set three agency priority goals for FY 2014–FY 2015 to monitor progress in specific areas where near-term focus on agency execution can have the most impact. In FY 2014, NSF continued its practice of having agency leaders conduct quarterly data-driven performance reviews for each of the three agency priority goals. NSF also participates actively in cross-agency priority goals (CAP) relevant to its mission and execution of that mission. Figure 4 shows NSF's FY 2014 Annual priority goals and CAP goals.

The following discussion of NSF's performance goals and results summarizes information available to date. NSF's *FY 2014 Annual Performance Report* (APR) will provide a fuller discussion of all the agency's performance measures, including descriptions of the metrics, methodologies, results, and trends,

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<sup>15</sup> See [www.whitehouse.gov/omb/mgmt-gpra/index-gpra](http://www.whitehouse.gov/omb/mgmt-gpra/index-gpra).

<sup>16</sup> OMB Circular A-11, *Preparation, Submission, and Execution of the Budget* (Part 6); see [www.whitehouse.gov/omb/circulars\\_a11\\_current\\_year\\_a11\\_toc](http://www.whitehouse.gov/omb/circulars_a11_current_year_a11_toc).

<sup>17</sup> [www.nsf.gov/about/performance/strategic\\_plan.jsp](http://www.nsf.gov/about/performance/strategic_plan.jsp).

along with a list of relevant external reviews. All of NSF's FY 2014 performance goals have undergone an independent verification and validation review by an external consultant using U.S. Government Accountability Office guidance.<sup>18</sup> More detailed information about NSF's GPRA verification and validation review will be part of the APR. NSF's FY 2014 APR will be included in the agency's *FY 2016 Budget Request to Congress*, which will be available at [www.nsf.gov/about/performance](http://www.nsf.gov/about/performance).

### Strategic Objectives and Strategic Reviews

In the spring of 2014 NSF designed and conducted the inaugural Strategic Review Process in response to the requirement of the GPRA Modernization Act 2010 Section 1116(f). OMB Circular A-11(270.2) specifies that: “Annually, agency leaders should review progress on each of the agency’s strategic objectives established by the agency Strategic Plans and updated annually in the Annual Performance Plan. These reviews should inform strategic decision-making, budget formulation, and near-term agency actions, as well as preparation of the Annual Performance Plan and Annual Performance Report.” NSF’s approach was to conduct a strategic and focused cross-cutting analysis using the results of existing assessment processes, evaluations, and reports as well as other sources of evidence. The following provides information on the focus of the strategic reviews for each of the strategic objectives in the Strategic Plan.

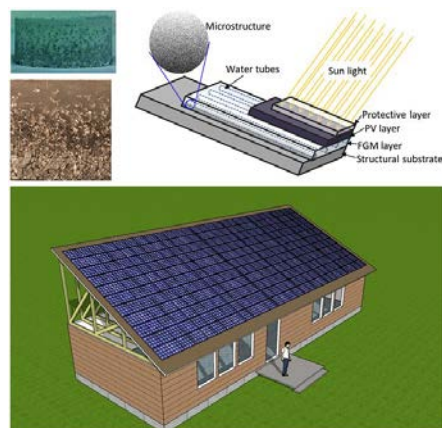
- ***G1/O1: Invest in fundamental research to ensure a continuous stream of advances across NSF science, engineering, and education.*** Support of interdisciplinary and potentially transformative research (IDR and PTR) at NSF contributes significantly to our ability to achieve the first strategic objective. The strategic review used the results of evaluations, and analysis of unstructured and administrative data to investigate a number of hypotheses about whether NSF has adequate mechanisms to support IDR and PTR.
- ***G1/O2: Integrate education and research to produce a diverse science, technology, engineering and mathematics (STEM) workforce with cutting-edge capabilities.*** The assumption that there is a shared understanding of what it means to “integrate education and research” was tested. The meaning and context of integration has varied over time. Enduring mechanisms include: 1) ensuring that the content of science courses include the latest research, 2) encouraging leading researchers to be involved in the education process, and 3) enabling student participation in research at all levels.
- ***G1/O3: Provide world-class research infrastructure to enable major scientific advances.*** The review examined NSF’s current practices for the assessment of facilities and determined that they are sufficient and appropriate. The increasing level of complexity of the facility programs that NSF funds, as well as the recognition that NSF is changing the overall planning for the lifecycle of facilities, point to the time being ripe for the agency to address the question of appropriate facility stewardship.
- ***G2/O1: Strengthen the links between fundamental research and societal needs through investments and partnerships.*** The strategic review investigated the current conventional wisdom for knowledge transfer, examined various models and mechanisms available within NSF to support knowledge transfer and their impacts, and identified gaps between what is needed and what we are currently doing.

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<sup>18</sup> U.S. Government Accounting Office. *The Results Act: An Evaluator’s Guide to Assessing Agency Annual Performance Plans* (GAO/GGD-10.1.20) (1998) ([www.gao.gov/special.pubs/gg10120.pdf](http://www.gao.gov/special.pubs/gg10120.pdf)).

- **G2/O2: Build the capacity of the nation to address societal challenges using a suite of formal, informal, and broadly available STEM educational mechanisms.** The strategic review examined mechanisms that NSF uses to convey its role in addressing societal challenges and promote awareness of those challenges through STEM education mechanisms. The review also investigated whether NSF has appropriate mechanisms to increase the capacity of STEM professionals to communicate, disseminate, or engage others in their research and education endeavors.
- **G3/O1: Build an increasingly diverse, engaged, high performing workforce by fostering excellence in recruitment, training, leadership, and human capital management.** The strategic review pointed to a potentially significant challenge in the coming years. Data on NSF's workforce suggest attrition scenarios that could have a significant impact on NSF's performance toward its mission through and after the anticipated FY 2017 move to Alexandria. NSF needs to take immediate actions to ensure that the people with the best possible match of skills to the tasks at hand are in place at the time of the move and beyond.
- **G3/O2: Use effective methods and innovative solutions to achieve excellence in accomplishing the agency's mission.** The strategic review used organizational theory to gain an understanding of the strengths and weaknesses of NSF's structure and culture. The strategic review team hypothesized that at NSF there are two predominant, interdependent cultures: one that is academic in nature and one that is business-oriented. These two interdependent cultures correlate respectively with the levels of flexibility and control that are manifested in NSF's business model. The review applied what was learned to understand how NSF can improve our use of working groups or teams.

**Solar Cells on Rooftops:** These roofing shingles take the light and the heat. They contain a solar cell, developed by Columbia University researchers, that converts light and heat into electricity. Harnessing both light and heat energy increases the potential power each solar cell can generate, which may provide significant cost and energy savings. A built-in cooling system improves the cells' efficiency in high-temperature climates and provides hot water for household purposes.



Solar cells that harvest energy from light and heat integrate into shingles. Credit: Huiming Yin, Columbia University

More information, including information about the specific “Opportunities for Action or Improvement” recommended by the strategic reviews, will be published with NSF's *FY 2016 Budget Request to Congress*.

Figure 4: NSF Performance Framework

| NSF 2014–2018 Strategic Goals   |  |
|---|--|
| Strategic Goal  | Strategic Objectives   |
| <b>G1:</b> Transform the Frontiers of Science and Engineering                             | O1: Invest in fundamental research to ensure significant continuing advances across science, engineering, and education.   |
|   | O2: Integrate education and research to support development of a diverse STEM workforce with cutting-edge capabilities.  |
|   | O3: Provide world-class research infrastructure to enable major scientific advances.   |
| <b>G2:</b> Stimulate Innovation and Address Societal Needs through Research and Education | O1: Strengthen the links between fundamental research and societal needs through investments and partnerships.   |
|   | O2: Build the capacity of the Nation to address societal challenges using a suite of formal, informal, and broadly available STEM educational mechanisms.                |
| <b>G3:</b> Excel as a Federal Science Agency  | O1: Build an increasingly diverse, engaged, and high performing workforce by fostering excellence in recruitment, training, leadership, and management of human capital. |
|   | O2: Use effective methods and innovative solutions to achieve excellence in accomplishing the agency's mission.  |

| NSF FY 2014-FY 2015 Priority Goals |  |   |
|------------------------------------|--|---|
| Type of Goal                       | Goal Header                                  | Goal Statement  |
| Agency Priority Goal               | Ensure Public Access to Publications         | Increase public access to NSF-funded peer-reviewed publications.<br><br>By September 30, 2015, NSF-funded investigators will be able to deposit versions of their peer-reviewed articles in a repository that will make them available to the public.   |
|                                    | Increase the Nation's Data Science Capacity  | Improve the nation's capacity in data science by investing in the development of human capital and infrastructure.<br><br>By September 30, 2015, implement mechanisms to support the training and workforce development of future data scientists; increase the number of multi-stakeholder partnerships to address the nation's big-data challenges; and increase investments in current and future data infrastructure, extending data-intensive science into more research communities.  |
|                                    | Optimize the Award Process to Level Workload | Improve agency and awardee efficiency by leveling award of grants across the fiscal year.<br><br>By September 30, 2015, NSF will meet targets to level distribution of awards across the fiscal year and subsequently improve awardee capacity to effectively manage research funding.  |
| Cross-Agency Priority (CAP) Goal   | STEM Education                               | Improve Science, Technology, Engineering and Mathematics (STEM) Education by implementing the Federal STEM Education 5-Year Strategic Plan, announced in May 2013, specifically: <ul style="list-style-type: none"> <li>• Improve STEM instruction</li> <li>• Increase and sustain youth and public engagement in STEM</li> <li>• Enhance STEM experience of undergraduate students</li> <li>• Better serve groups historically under-represented in STEM fields</li> <li>• Design graduate education for tomorrow's STEM workforce</li> <li>• Build new models for leveraging assets and expertise</li> <li>• Build and use evidence-based approaches</li> </ul> |
|                                    | Lab-to-Market                                | Increase the economic impact of federally-funded research and development by accelerating and improving the transfer of new technologies from the laboratory to the commercial marketplace.   |

## **FY 2014 Progress Toward Goals**

In FY 2014, NSF tracked progress toward its three strategic goals through 10 annual performance goals. All program activities within the agency were covered by the goals.

### ***Mission-Oriented Strategic Goals***

Several goals supported both objectives under both mission-oriented goals, *Transform the Frontiers of Science and Engineering* and *Stimulate Innovation and Address Societal Needs Through Research and Education*.

- NSF developed a process for uniform monitoring of key program investments. Progress toward this goal's objectives involved selection of a common set of key indicators to measure NSF-wide activities at various stages in their implementation.
- Career-Life Balance investments promoted policies and practices designed to support fuller utilization of the talents of individuals from all sectors of the American population, principally women, under-represented minorities, and persons with disabilities. In FY 2014, NSF collaborated with NIH to coordinate policies, conducted outreach to increase awareness of the program's opportunities, and began an analysis of the first 3 years of the program.
- All NSF-funded facility construction projects kept cost and schedule variance below 10 percent.
- The Graduate Research Fellowship Program offered a wider range of career development opportunities to awardees through two new internship programs, offering students exposure to both federal government and international opportunities.
- Undergraduate education efforts were coordinated through a new program description and the Improving Undergraduate STEM Education Program to maximize the effectiveness of NSF investments in improving the STEM learning experiences of undergraduates.

### ***Management Goal***

In FY 2014, annual goals to achieve the management-oriented strategic goal, Excel as a Federal Science Agency, focused on customer service, human resources development, and technological upgrades.

- In an important financial modernization step, NSF met its targets in transitioning to its commercial off-the-shelf financial system, iTRAK. More information on iTRAK can be found on page I-26.
- Seventy-two percent of applicants were informed whether their proposals were declined or recommended for funding within 6 months of submission. This exceeded the target of 70 percent.
- More than 31 percent of review panels were conducted virtually, exceeding the goal of 15 percent.
- NSF continued to make progress toward achieving "Model Equal Employment Opportunity (EEO) Agency" status. Five of the six essential elements required by the Equal Employment Opportunity Commission to attain a model EEO agency program have been met, and two compliance desk reviews were planned.
- For the fourth year, NSF's temporary scientific staff members were included under the same performance management system used for full-time employees. The Division for Human Resource Management developed internal resources for leadership to monitor key human capital metrics.

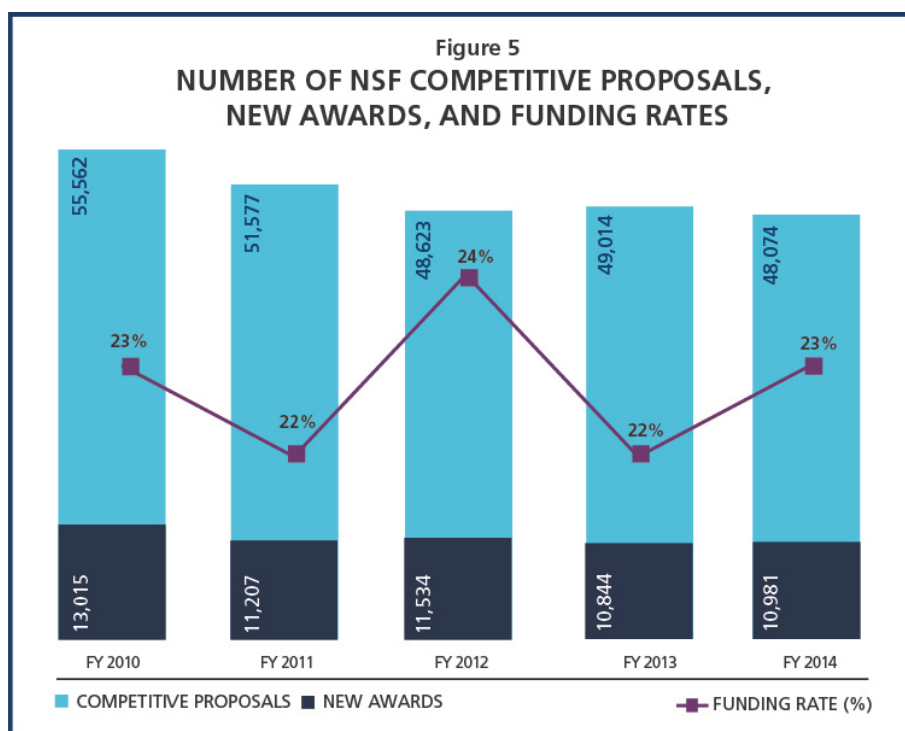
### ***Agency Priority Goals and Cross-Agency Priority Goals***

For current information about agency and cross-agency priority goals, please see [www.performance.gov](http://www.performance.gov).

## Workload and Management Trends

NSF continuously monitors key portfolio, workload, and financial measures to understand short- and long-term trends and to help inform management decisions. For an analysis of the long-term trends in competitive proposals, awards, funding rate, and other portfolio metrics, see the *Report to the National Science Board on the National Science Foundation's Merit Review Process, Fiscal Year 2013* (NSB-14-32) at [www.nsf.gov/nsb/publications/pub\\_summ.jsp?ods\\_key=nsb1432](http://www.nsf.gov/nsb/publications/pub_summ.jsp?ods_key=nsb1432).

- In FY 2014, the number of competitive proposals reviewed by NSF dropped nearly 2 percent—a decrease of 940, to 48,074 (Figure 5). The decrease in competitive proposals—to the lowest since FY 2009—reflects changes such as the consolidation of programs into one with a short proposal period and the movement and elimination of proposal deadlines.
- Although the number of new awards increased slightly in FY 2014—by 1.3 percent (137) to 10,981—it is nearly 6 percent below the 11,650 average annual number of awards made between FY 2010 and FY 2013.
- The increase in new award actions coupled with a 2 percent decrease in the number of competitive proposals resulted in a 1 percentage point increase in the funding rate, to 23 percent. The 23 percent funding rate is the average annual rate that has prevailed in the last 4-year period, from FY 2010 to FY 2013.



- As shown in Figure 6, in FY 2014, the average annual award size of competitive awards increased 6.7 percent, from \$169,107 in FY 2013 to \$180,507 in FY 2014. This is the first increase in average annual award size since FY 2009, and the largest average annual award size since FY 2010. As noted in the FY 2013 Merit Review Report, “Adequate award size and duration are important for enabling science of the highest quality and ensuring that the proposed work can be accomplished as planned.

Larger award size and longer award duration may also permit the participation of more students and allow investigators to devote a greater portion of their time to conducting research.”<sup>19</sup>

- In FY 2014, NSF’s workforce in terms of full-time equivalents (FTE) was at 1,390, a decrease of 24 from the prior year and the lowest since FY 2009. The drop in FTEs was primarily the result of staff retirements during the year.
- The number of active awards decreased 3.6 percent (1,996) in FY 2014, from 55,542 in FY 2013 to 53,546 in FY 2014. This decrease reflects a combination of factors including the expiration of the majority of NSF’s grants funded through the American Recovery and Reinvestment Act of 2009 (ARRA)—of which only about 300 remain active out of a portfolio of more than 5,000—and the fact that the number of new awards made in the years following ARRA have dropped back to levels observed in pre-ARRA years.

Figure 6: Workload and Management Trends

| Measure   |   | FY 2010   | FY 2011   | FY 2012   | FY 2013   | FY 2014   | Percent Change (FY 2014/ FY 2013) | Average FY 2010- FY 2013 |
|-----------|---|-----------|-----------|-----------|-----------|-----------|-----------------------------------|--------------------------|
| Portfolio | Competitive proposal actions                                      | 55,562    | 51,577    | 48,623    | 49,014    | 48,074    | -1.9%                             | 51,194                   |
|           | Competitive award actions   | 13,015    | 11,207    | 11,534    | 10,844    | 10,981    | 1.3%                              | 11,650                   |
|           | Average annual award size (competitive awards)                    | \$189,338 | \$172,533 | \$169,217 | \$169,107 | \$180,507 | 6.7%                              | \$175,049                |
|           | Funding rate  | 23%       | 22%       | 24%       | 22%       | 23%       | 1-percentage point                | 23%                      |
| Workload  | Number of employees (FTE, usage)                                  | 1,424     | 1,415     | 1,415     | 1,414     | 1,390     | -1.7%                             | 1,417                    |
|           | Number of active awards *   | 55,449    | 56,414    | 56,432    | 55,542    | 53,546    | -3.6%                             | 55,959                   |
|           | Proposal reviews conducted  | 287,017   | 262,005   | 235,654   | 233,116   | 225,847   | -3.1%                             | 254,448                  |
| Financial | Number of grant payments  | 22,782    | 29,214    | 28,016    | 27,649    | 27,978    | 1.2%                              | 26,915                   |
|           | Award expenses incurred but not reported at 9/30 (\$ in millions) | \$1,702   | \$1,679   | \$1,769   | \$344     | \$250     | -15.7%                            | 1,374                    |

\* Active awards include all active awards regardless of whether funds were received during the fiscal year.

- During FY 2014, NSF completed its first full year with grantees using the Award Cash Management Service (ACM\$) for all payment activity. In the ACM\$ environment, all NSF awardee institutions are required to submit payment requests at the award level. Award expenses are posted to the NSF financial system at the time of the payment request. The implementation of ACM\$ has enabled NSF

<sup>19</sup> Ibid, page 19.



to significantly increase the volume of award financial data available to the agency for management and monitoring activity. In FY 2014, NSF awardees submitted approximately 28,000 payments comprised of over 785,000 award level disbursement/expense transactions. In prior years under the Federal Financial Report (FFR), NSF awardee institutions processed an average of 200,000 award expense transactions per year.

- In addition to the increase in financial data available to NSF management, ACM\$ has significantly improved the timeliness of that data. In prior years, as of September 30th, NSF awardee institutions using the FFR had approximately \$1.7 billion in award expenses that they had incurred but not yet reported to NSF. Under ACM\$, the amount of incurred but not reported award expenses has decreased to approximately \$250 million. This amount was verified through statistical sampling of awardee institutions at September 30, 2014.
- The increase in award financial data has also led to opportunities to enhance financial activity monitoring processes. NSF is accomplishing this through implementation of financial close-out for all awards 90 days after the award expiration date, tracking of awards with large unliquidated balances as awards approach expiration, and increased focus on tracking awards with canceling appropriations.

## **Financial Discussion and Analysis**

Efficient management requires planning and decisionmaking based on timely and accurate financial information. Managers at all levels of an organization depend on reliable financial information for making critical resource allocation decisions to provide effective services. FY 2014, which began with a disruptive 16-day government shutdown, was a particularly challenging year. The lapse in appropriations put pressure on NSF to reassess its priorities and significantly complicated year-end activities. Extra time and effort were needed to work through a backlog of activities and resume financial operations, as well as meet the agency's year-end reporting responsibilities.

In spite of these challenges, in FY 2014, several projects were undertaken to make the agency's financial information more accessible and ensure sound stewardship of the public trust.

- NSF modernized its over 25-year-old financial management system, successfully transitioning to a fully integrated financial management solution. The new "iTRAK" system enables the seamless flow of financial information for relevant and timely decisionmaking; improves the effectiveness and efficiency of financial and business processes; and enhances financial and business accountability, integrity, and compliance with OMB requirements.
- NSF improved its accountability and effectiveness of operations by developing a new risk assessment methodology and estimation process for improper payments.
- Implementation of the Award Cash Management Service (ACM\$), which established a new approach to award payments and post-award financial processes, went through its first full year. As expected, ACM\$ has resulted in timelier access to financial data, fund status monitoring, and expense reports. NSF expects further improvements in ACM\$ use and reporting as grantees continue to adapt to the new service.

In accordance with the Chief Financial Officers Act of 1990 and the Government Management Reform Act of 1994, NSF prepares financial statements in conformity with generally accepted accounting principles (GAAP) for U.S. federal entities. The financial statements present NSF's detailed financial information relative to its mission and the stewardship of those resources entrusted to the agency. It also provides readers with an understanding of the resources that NSF has available, the cost of our programs, and the status of resources at the end of the fiscal year. NSF subjects its financial statements to an independent audit to ensure that they are free from material misstatement and can be used to assess NSF's financial status and related financial activity for the years ending September 30, 2014 and September 30, 2013.

For FY 2014, NSF received its 17th consecutive unmodified audit opinion. The audit report noted no material weaknesses but included two significant deficiencies. The prior year significant deficiency related to the monitoring of construction-type agreements was repeated. NSF will continue to work to strengthen controls for awarding and overseeing construction-type cooperative agreements, exercising enhanced end-to-end cost surveillance in response to OIG concerns.

The second significant deficiency is related to NSF's methodology for calculating its grant accrual. The methodology that NSF used in FY 2013 to calculate the amount incurred but not yet reported by its grantees and thus not yet paid by NSF to the grantee under the new ACM\$ system resulted in an underestimation. In FY 2014, pursuant to guidelines set forth in Technical Release (TR 12) *Accrual Estimates for Grant Programs*, NSF performed a statistical validation of grantee expenses incurred, but not yet reported/drawn as of September 30, 2013. NSF determined that the underestimated amount was

due to a combination of change in estimate and corrections of errors in FY 2013. The correction of errors portion of the increase was not material to the FY 2013 financial statements and, accordingly, the FY 2013 financial statements were not restated (refer to Note 7 of the financial statements for more details).

The Independent Auditors' Report can be found on page II-3. Management's response to the Independent Auditors' Report can be found on page II-17

### Understanding the Financial Statements

The following discussion of our financial condition and results of operations should be read together with the financial statements and the accompanying notes.

NSF's FY 2014 financial statements and notes are presented in accordance with OMB Circular A-136, *Financial Reporting Requirements*. NSF's current year financial statements and notes are presented in a comparative format. The Stewardship Investment schedule presents information over the last five years. Figure 7 summarizes the changes in NSF's financial position in FY 2014.

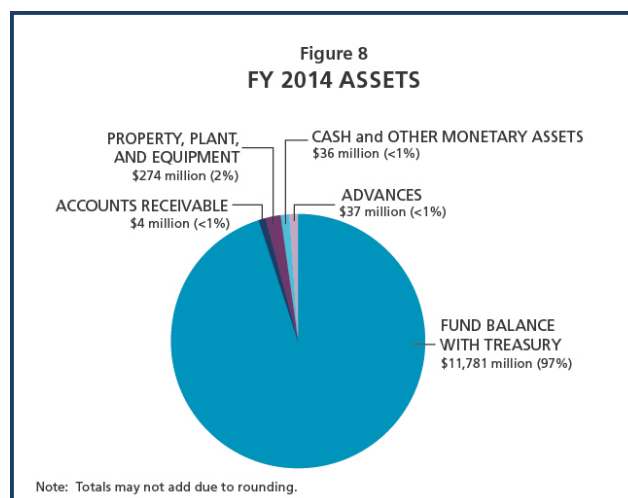
Figure 7. Changes in NSF's Financial Position in FY 2014 (dollars in thousands)

| Net Financial Condition | FY 2014      | FY 2013      | Increase/ (Decrease) | % Change |
|-------------------------|--------------|--------------|----------------------|----------|
| <b>Assets</b>           | \$12,131,850 | \$11,970,603 | \$161,247            | 1.3%     |
| <b>Liabilities</b>      | \$380,259    | \$259,846    | \$120,413            | 46.3%    |
| <b>Net Position</b>     | \$11,751,591 | \$11,710,757 | \$40,834             | 0.3%     |
| <b>Net Cost</b>         | \$7,256,651  | \$7,117,071  | \$139,580            | 2.0%     |

### Balance Sheet

The Balance Sheet presents the total amounts available for use by NSF (assets) against the amounts owed (liabilities) and amounts that comprise the difference (net position). NSF's total assets are largely composed of *Fund Balance with Treasury*. A significant balance also exists in the *General Property, Plant, and Equipment* account.

In FY 2014, Total Assets (Figure 8) increased 1.3 percent from FY 2013. The bulk of the change occurred in the *Fund Balance with Treasury* account, which increased by \$193.6 million in FY 2014. *Fund Balance with Treasury* is funding available from which NSF is authorized to make expenditures and pay amounts due through the disbursement authority of the Department of Treasury. It is increased through appropriations and collections and decreased by expenditures and rescissions.



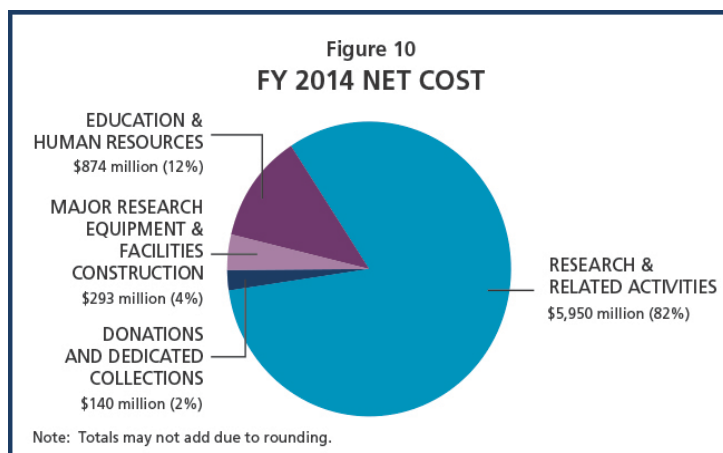
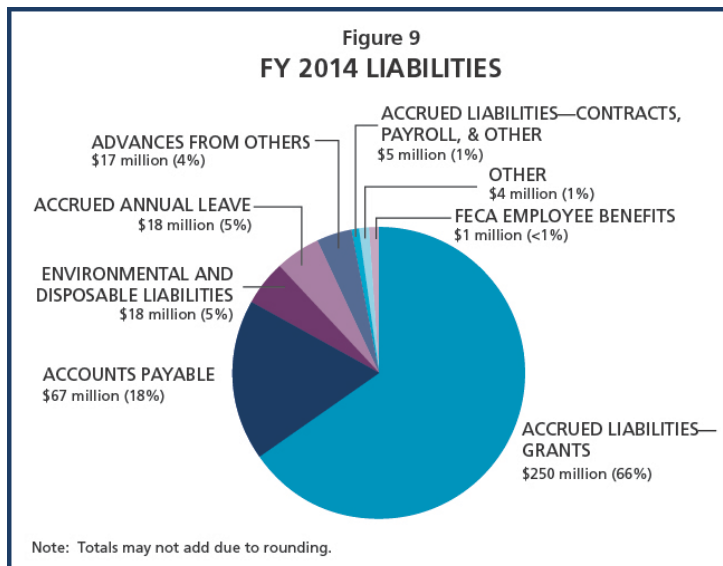
In FY 2014, Total Liabilities (Figure 9) increased 46.3 percent from FY 2013. This change is related to the increase in *Accrued Liabilities—Grants*, which increased by \$159.2 million in FY 2014. The increase in *Accrued Liabilities—Grants* can be partially attributed to the implementation of ACMS in FY 2013, which required a modification of NSF's grant accrual methodology. NSF is actively collecting information from its grantees and ACMS as a new grant accrual methodology is developed for future years. Although a new methodology has not been finalized as of September 30, 2014, NSF's interim

approach uses statistical sampling and grantee confirmation survey results to estimate grant expenses incurred but not yet reported.

**Statement of Net Cost**

The Statement of Net Cost presents the annual cost of operating NSF programs. The net cost of each specific NSF program operation equals the program's gross cost less any offsetting revenue. Intragovernmental earned revenues are recognized when related program or administrative expenses are incurred. *Earned revenue* is deducted from the full cost of the programs to arrive at the *Net Cost of Operation*.

Approximately 96 percent of all current year NSF Net Costs of Operations incurred were directly related to the support of the Research and Related Activities (R&RA), Education and Human Resources (EHR), Major Research Equipment and Facilities Constructions (MREFC) programs; and Donations and Dedicated Collections. Additional costs were incurred for indirect general operation activities (e.g., salaries, training, and activities related to the advancement of NSF information systems technology) and activities of the NSB and the OIG. These costs were allocated to R&RA, EHR, MREFC, and Donations and Dedicated Collections and account for 4 percent of the total current year Net Cost of Operations (Figure 10). These administrative and management activities are focused on supporting the agency's program goals.



**Statement of Changes in Net Position**

The Statement of Changes in Net Position presents the agency's cumulative net results of operation and unexpended appropriations for the fiscal year. NSF's Net Position increased slightly by 0.3 percent, or \$40.8 million, in FY 2014.

**Statement of Budgetary Resources**

This statement provides information on how budgetary resources were made available to NSF for the year and the status of those budgetary resources at year-end. For FY 2014, *Total Budgetary Resources* increased by \$269.8 million. *Budgetary Resources—Appropriations* for the R&RA, EHR, and MREFC accounts were \$5,801.6 million, \$845.4 million, and \$200.0 million, respectively. The combined *Budgetary Resources—Appropriations* in FY 2014 for the NSB, OIG, and AOAM accounts totaled \$324.8 million. NSF also received funding via warrant from the H-1B Non-immigrant Petitioner Fees

Accounts (H-1B) in the amount of \$128.0 million, and via donations from foreign governments, private companies, academic institutions, nonprofit foundations, and individuals in the amount of \$32.5 million. In FY 2014, the *Budgetary Resources—Appropriations* line was also affected by H-1B sequestration in the amount of \$9.5 million.

### ***Stewardship Investments***

NSF-funded investments yield long-term benefits to the general public. NSF investments in research and education produce quantifiable outputs, including the number of awards made and the number of researchers, students, and teachers supported or involved in the pursuit of science and engineering research and education. NSF incurs stewardship costs to empower the nation through discovery and innovation. In FYs 2014 and 2013, these costs amounted to \$309.8 million and \$327.4 million, respectively.

### **Limitations of the Financial Statements**

In accordance with the guidance provided in OMB Circular A-136, NSF discloses the following limitations of the agency's FY 2014 financial statements, which appear in Chapter 2 of this report: The principal financial statements have been prepared to report the financial position and results of operations of NSF, pursuant to the requirements of 31 U.S.C. 3515(b). While the statements have been prepared from NSF books and records in accordance with GAAP for federal entities and the format prescribed by OMB, the statements are in addition to the financial reports used to monitor and control budgetary resources, which are prepared from the same books and records. The statements should be read with the realization that they are for a component of the U.S. Government, a sovereign entity.

### **Other Financial Reporting Information**

#### ***Debt Collection Improvement Act of 1996***

Net Accounts Receivable totaled \$4.4 million at September 30, 2014. Of that amount, \$2.2 million is due from other federal agencies. The remaining \$2.2 million is due from the public. NSF fully participates in the Department of the Treasury Cross-Servicing Program. In accordance with the Debt Collection Improvement Act, this program allows NSF to refer debts that are delinquent more than 180 days to the Department of the Treasury for appropriate action to collect those accounts. OMB Circular A-129, *Policies for Federal Credit Programs and Non-Tax Receivables*, details agencies' responsibility to effectively manage delinquent debt, including writing-off and closing-out receivables. NSF writes off delinquent debt more than two years old. Additionally, NSF seeks Department of Justice concurrence for action items over \$100,000.

#### ***Cash Management Improvement Act***

In FY 2014, NSF had no awards covered under Cash Management Improvement Act Treasury-State Agreements. The timeliness of NSF's payments to grantees through its payment systems makes the timeliness of payment issue under the Act essentially not applicable to the agency. No interest payments were made in FY 2014.

## Systems, Controls, and Legal Compliance



### National Science Foundation FY 2014 Statement of Assurance

The National Science Foundation (NSF) management is responsible for improving the accountability and effectiveness of its program and operations by establishing, assessing, correcting, and reporting on internal controls to meet the objectives of the Federal Managers Financial Integrity Act of 1982 (Integrity Act) and the Federal Financial Management Improvement Act of 1996 (FFMIA). The agency head is required to provide a statement on whether there is reasonable assurance the agency's controls are achieving their intended objectives and report any material weaknesses in the controls, as required by Section 2 and whether the agency's financial systems conform to government-wide requirements, as required by Section 4 of the Integrity Act. Management is required to provide a separate assessment of the effectiveness of internal controls over financial reporting.

NSF's internal control program is designed to ensure full compliance with applicable laws and regulations: OMB Circular A-123, *Management's Responsibility for Internal Control*, including Appendix A—*Internal Control over Financial Reporting*, Appendix B—*Improving the Management of Government Charge Cards*, Appendix C—*Requirements for Effective Measurement and Remediation of Improper Payments*, Appendix D—*Compliance with the Federal Financial Management Improvement Act; Conducting Acquisition Assessments* under OMB Circular A-123; and OMB Circular No. A-130, *Management of Federal Information Resources*.

NSF completed its evaluations and carefully considered the appropriate balance between controls and risk in operations and the financial management system. Based on the results of these evaluations, NSF provides reasonable assurance that as of September 30, 2014, its internal control over operations and the financial management system were operating effectively to ensure compliance with applicable laws and regulations. No material weaknesses were identified in the design or operation of internal control under Section 2 of the Integrity Act and Section 4 of the Integrity Act, and no system non-conformances were identified for compliance with the FFMIA.

In addition, NSF conducted its assessment of the effectiveness of internal control over financial reporting, which included the safeguarding of assets and compliance with applicable laws and regulations. Based on the results of this assessment for the period ending June 30, 2014, NSF provides reasonable assurance that internal control over financial reporting was operating effectively and no material weaknesses were identified in the design or operation of internal control over financial reporting.

For FY 2014, NSF is providing an unqualified statement of assurance that its internal control and the financial management system meet the objectives of the Integrity Act, FFMIA, and financial reporting, as well as related laws and guidance.

/s/  
**FRANCE A. CORDOVA**  
Director

December 15, 2014

## Management Assurances

NSF is continually seeking ways to improve transparency and accountability in the achievement of its mission. The internal control system is a continuous integrated component of operations effected by people. It provides a reasonable assurance, not absolute assurance, that the organization's objectives are achieved. Tone from the top, analysis of risk, policies and procedures, quality information, and assessing the quality of internal control performance over time are necessary components to ensure compliance with federal laws, regulations, and guidance.

Internal control supports efficient and effective operations, reporting reliable information about operations, and compliance with applicable laws and regulations. The Integrity Act,<sup>20</sup> the GAO *Standards for Internal Control in the Federal Government*,<sup>21</sup> and OMB Circular A-123, *Management's Responsibility for Internal Control* (including the appendices),<sup>22</sup> require ongoing evaluations and annual reporting of the adequacy of the systems of internal control.

The Statement of Assurance is management's assessment of the effectiveness of NSF's internal control. For FY 2014, NSF's internal controls assessment provides reasonable assurance that the objectives of the Integrity Act were achieved and also concludes that the internal controls over financial reporting are effective. NSF is submitting an unqualified Statement of Assurance for FY 2014.

## Highlights From NSF's FY 2014 Internal Control Quality Assurance Program

To achieve an unqualified Statement of Assurance, NSF's FY 2014 Internal Control Quality Assurance (ICQA) Program review consisted of evaluating 11 business processes for the period July 1, 2013, through June 30, 2014, to assess internal control over financial reporting. The internal control review assessed internal control over operations and the financial management system for the period October 1, 2013, through September 30, 2014.

NSF integrated the internal control review for improper payments with the annual internal control review and focused on FY 2012 and FY 2013 data. Efficiencies were gained through the synergy of the combined effort by leveraging components of the three types of risk-based internal control reviews to include risk assessments, flowcharting, control matrices, testing, and reporting of results.

With the understanding that internal control is more than just an exercise in compliance with the Integrity Act, the NSF's internal control reviews utilized an innovative internal control approach that enables an enterprise-wide review—an approach that helps NSF management ensure internal control is not limited to just organizational components with financial touch points.

The FY 2014 internal control assessment consisted of assuring efficiency and effectiveness of operations, reliability of financial reporting, and compliance with laws and regulations. Internal controls within NSF are established with a top-down approach, at the entity-level, and within the business processes. NSF adopted the components of internal control and principles from the Committee of Sponsoring Organizations of the Treadway Commission's (COSO) Internal Control–Integrated Framework, to assure an effective internal control system.<sup>23</sup>

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<sup>20</sup> For more information about the Federal Managers Financial Integrity Act of 1982, see [www.whitehouse.gov/omb/financial\\_fmfi1982](http://www.whitehouse.gov/omb/financial_fmfi1982).

<sup>21</sup> For more information about GAO *Standards for Internal Control in the Federal Government*, see [www.gao.gov/products/GAO-14-704G](http://www.gao.gov/products/GAO-14-704G).

<sup>22</sup> For more information about OMB Circular A-123, see [www.whitehouse.gov/omb/circulars\\_a123\\_rev](http://www.whitehouse.gov/omb/circulars_a123_rev).

<sup>23</sup> For more information about the COSO internal control integrated framework, see [www.coso.org/ic.htm](http://www.coso.org/ic.htm).

To meet the requirements of the OMB Circular A-123, *Management's Responsibility for Internal Control* and its appendices, the internal control review was designed and conducted to include financial reporting, charge cards, improper payments, financial systems, and acquisition. These considerations with the 11 business process internal control reviews provided a comprehensive review resulting in an unqualified Statement of Assurance.

***NSF's Integrated Internal Control System—OMB Circular A-123, Appendices A and B***

The NSF risk-based integrated internal control system supports the organization to adapt to new/revised federal mandates, resource constraints, and emerging priorities. NSF management evaluates its internal control system to assure it is effective and updated when necessary. In FY 2014, the Internal Control Quality Assurance Team performed the following:

1. Established a Program Governance structure, documenting the methodology and communication flow of NSF's Internal Control Quality Assurance Program
2. Updated process documentation (narratives and flow diagrams) for each key business process
3. Selected samples based on the frequency of performance of control from the universe of NSF controls performed during FY 2014, using a methodology that is risk-based, statistically valid, and compliant with current OMB guidelines
4. Conducted tests of all transactions selected in the samples and determined if the controls were designed adequately and operating effectively
5. Prepared a final report that details the results of testing and assisted NSF in meeting the reporting requirements for its FY 2014 Statement of Assurance.

This approach leveraged various data collection techniques including conducting interviews, administering surveys, and facilitating working sessions to “widen the lens,” thus helping to ensure that mission critical areas—that may not have a financial impact—are given adequate attention and consideration. The above process assures internal control over financial reporting is assessed and documented, including internal and external financial reports and compliance with laws and regulations that pertain to those financial reports (Appendix A).

Consistent with the application of the annual internal control methodology with Appendix A, the same process was applied to the government charge card program. The annual internal control review assessed and documented compliance with Appendix B to assure the risk of fraud, waste, and errors were reduced in accordance with the requirement to improve the management of government charge card programs.

***Improper Payment Initiative—OMB Circular A-123, Appendix C***

NSF took a retrospective and prospective view in developing and implementing a revised risk assessment methodology and sampling plan. The agency reviewed its grant program and other activities it administers to develop an approach for determining risk and susceptibility to improper payments. The objective is to detect and prevent improper payments in the future.

The annual internal control review assesses contracts/payments; the procure-to-pay approach supports reliance on the annual contracts management review to adhere to the improper payment review requirements (Appendix C). NSF utilizes a shared service provider for payroll. The annual internal control review conducts transactional payroll testing and relies upon the SSAE 16 received from the shared service provider, adhering to the improper payment review requirements.

To support these efforts, this year for the first time the internal control review integrated the United States Antarctic Program (USAP) payment review with the annual internal control review. The USAP payments were tested within the contract management review. The contract management review annually tests



procure-to-pay for contracts/payments. This approach eliminated duplication of effort and integrated the USAP contract/payments rather than having two distinctive initiatives.

There were two significant areas in which the Internal Control Quality Assurance Program review leveraged the annual internal control review, to eliminate duplication of efforts: 1) with the improper payment review, related to contract management and payroll, and 2) the contract management review, to eliminate duplication of effort with reviewing contract payments.

The improper payment review process was a 2-year effort coordinated with OMB to include the risk assessment, statistical sampling plan, and pilot testing this year. The FY 2014 testing consisted of fourth quarter transactions for FY 2013 data to coincide with a new grant payment system. Contract and payroll transactions are tested thoroughly in the annual internal control review; NSF will continue to include contract and payroll transaction testing within the scope of the annual internal control review.

The details of NSF's FY 2014 Improper Payments Elimination and Recovery Act risk assessment are included in Appendix 2 of this report.

#### ***Internal Control Assessment--OMB Circular A-123, Appendix D***

To support the 2-year approach for implementing the financial management system policies and procedures OMB approved, the existing internal control methodology was utilized to assess the current legacy financial system and controls. The internal control review was conducted to leverage the improved process for grant payments and consider the upcoming changes to the financial system.

NSF also utilized guidance from the GAO *Federal Information System Controls Audit Manual* (FISCAM) to assess the entity-level controls related to NSF's Security Management Program, Access Controls, Configuration Management, Segregation of Duties, and Contingency Planning. Additionally, the Application level controls for NSF's Awards System and eJacket application were assessed to assure compliance with the FFMIA (Appendix D). The ICQA team validated the design and operational effectiveness of 40 controls. In alignment with Section 2.1.6 of the FISCAM, the information system controls were compliant.

In addition, the internal control program monitored the new financial system implementation to plan for future program impacts.

#### ***Acquisition Assessment--OMB Circular A-123***

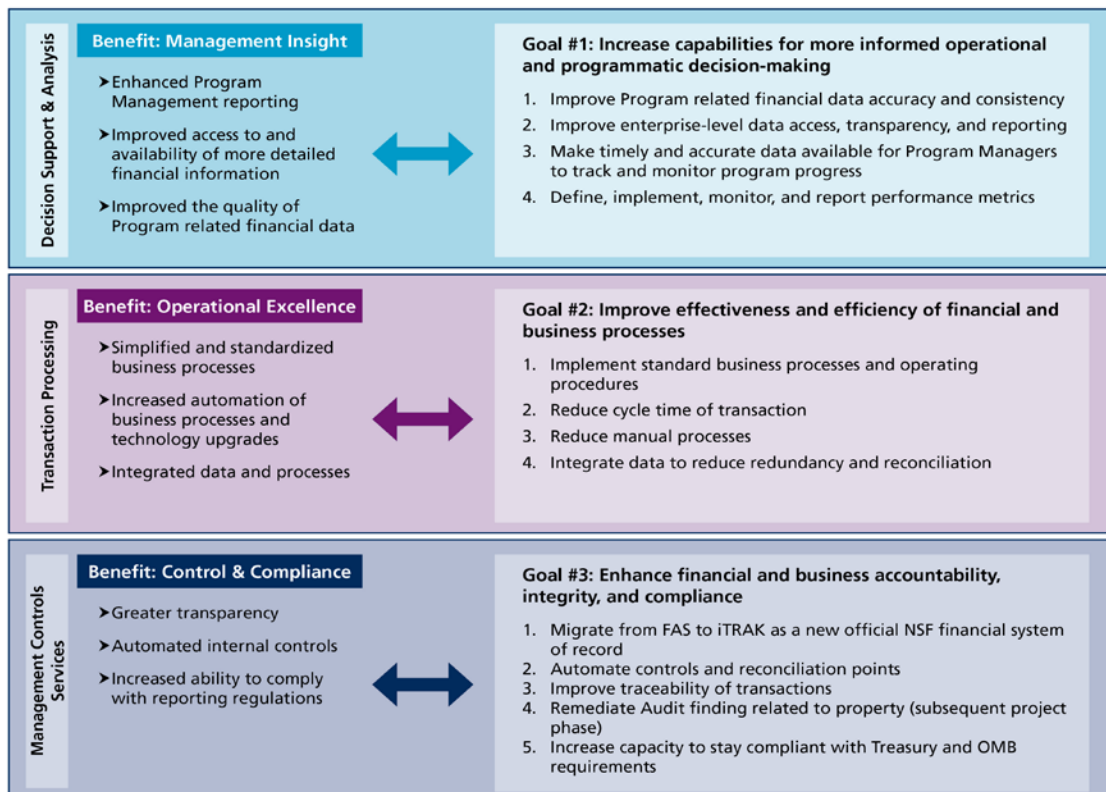
NSF developed a baseline for the acquisition assessment to include the four cornerstones identified by GAO: 1) organizational alignment, 2) policies and processes, 3) human capital, and 4) information management and stewardship. This was the basis for NSF's self-assessment. The internal control continues to survey the acquisition organization, conduct entity-level control reviews, and review contracts management annually. The established baseline for the acquisition assessment allows NSF to review one cornerstone annually. This approach integrates the entity-level acquisition review into the existing internal control review and reporting processes that are used to support the annual OMB Circular A-123-related assurance statement, as appropriate.

## Financial System Strategy and Framework

After a 4-year planning period and a 2-year implementation period, in October 2014, NSF successfully transitioned to a new financial management solution that replaces its 25-year-old custom legacy Financial Accounting System (FAS). The new system, known as “iTRAK,” is a cloud-based commercial off-the-shelf (COTS) Oracle Federal Financials system hosted in a shared service environment. Motivations for using a COTS system include the expectations of a reduction in the overall system-development costs (as components can be bought or licensed instead of being developed from scratch) and reduced long-term maintenance costs. As COTS incorporates industry best practices, there will be greater standardization and integration with other federal and financial systems. In addition, since compliance requirements are inherent in the COTS system the new solution will help NSF uphold its strong compliance record. NSF selected Accenture, a management consulting, technology services and outsourcing company, to implement iTRAK. They are teamed with Booz Allen Hamilton, a management and technology consulting company.

iTRAK was developed in accordance with OMB Memorandum M-10-26, *Immediate Review of Financial Systems IT Projects*, OMB Memorandum M-13-08, *Improving Financial Systems Through Shared Services*, and other government-wide requirements. iTRAK was developed to comply with OMB Circular A-123, Appendix D and other applicable regulatory requirements. Specifically, iTRAK ensures that transactions are posted in accordance with the U.S. Standard General Ledger (USSGL) at the transaction level; maintains accounting data to permit reporting in accordance with Generally Accepted Accounting Principles (GAAP) as prescribed by the Federal Accounting Standards Advisory Board (FASAB) for federal reporting entities; enforces strict funds control to prevent anti-deficiencies across the budgeting and spending functions; and enables strong access control and definition of “responsibilities” to support segregation of duties control. Figure 11 shows the goals and benefits of iTRAK.

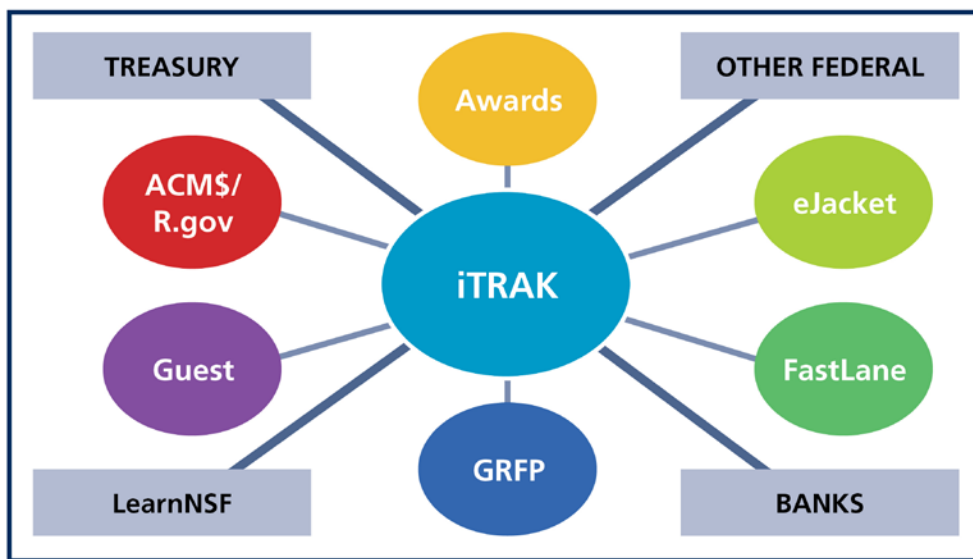
Figure 11. iTRAK Benefits and Goals



As the agency's new core financial system, iTRAK interfaces with NSF's existing awards and grants management systems including eJacket, NSF's internal awards processing system; FastLane, NSF's online website through which the agency conducts its relationship with the proposal community, reviewers, and research administrators and their organizations; the Award Management and Award Letter System ("Awards"); the Award Cash Management Service (ACMS); the Graduate Research Fellowship Program (GRFP); and the Guest Travel and Reimbursement System. As shown in Figure 12 below, iTRAK also interfaces with LearnNSF, the agency's staff training module; other federal systems such as the Federal Personnel Payroll System (FPPS), eTravel/Concur, and GSA's System for Award Management (SAM); and the U.S. Treasury as well as with J.P. Morgan Chase Bank.

Future iTRAK phases include integration of an Acquisition Module, a Fixed Asset Module, and a Budget Formulation Module with the Oracle COTS core financial system, as resources permit.

Figure 12. The iTRAK Framework



The image features a large, faint watermark of the INSE logo in the background. The logo consists of a circular gear-like shape with the letters 'INSE' in a serif font across its center. The background is a dark blue gradient with a repeating pattern of smaller gear shapes.

INSE

Chapter 2

**Financials**



## A MESSAGE FROM THE CHIEF FINANCIAL OFFICER



Credit: Sandy Schaeffer

Fiscal year (FY) 2014 was a year of unprecedented challenges, beginning with a disruptive 16-day government shutdown. Despite these challenges, significant accomplishments were achieved.

I am pleased to report that for FY 2014 the National Science Foundation received its 17th consecutive unmodified audit opinion, affirming that the agency's financial statements for the year ended September 30, 2014, were presented fairly in all material respects and in conformity with U.S. generally accepted accounting principles. The Independent Auditor's Report noted no material weaknesses but included two significant deficiencies. First, the prior year significant deficiency related to the monitoring of construction-type agreements was repeated. NSF will continue to work to strengthen controls for awarding and overseeing construction-type cooperative agreements, exercising enhanced end-to-end cost surveillance in response to Office of Inspector General concerns. The second significant deficiency is related to NSF's methodology for estimating its grant accrual. NSF's new grant payment system resulted in timelier grant expenditures at year-end. With this new approach, however, we can no longer rely on the historical data used in previous years to develop these estimates. This has required developing a new methodology to estimate grant expenditures through the end of the year and validate the reasonableness of assumptions used to develop those estimates.

Several important management accomplishments in FY 2014 will help ensure NSF continues its leadership in stewardship and federal financial management for years to come.

- In October 2014, NSF successfully implemented iTRAK, a financial management solution that replaces NSF's over 25-year-old custom legacy Financial Accounting System (FAS) with a cloud-based commercial off-the-shelf Oracle Federal Financials system hosted in a shared service environment. The 4-year planning and 2-year implementation period was a major collaborative effort involving financial, IT, budget, and program staff and senior management from across the agency. Ultimately, the iTRAK initiative came in on schedule and within budget. The transition to a new financial management system required the agency to close out financial records in mid-September and postpone commencement of the new FY 2015 fiscal year until mid-October. I would like to express my appreciation to the Office of Management and Budget (OMB) and the Department of Treasury, whose agreement to extend NSF's financial reporting and audit schedule was crucial to the success of bringing the new system online smoothly and in a timely manner. Among the benefits provided by iTRAK will be an increased ability to comply with reporting requirements. A more detailed discussion of NSF's new financial management system can be found in Chapter 1, "Financial System Strategy and Framework."
- In NSF's capacity as the first rotating member on the Council on Financial Assistance Reform (COFAR), NSF played a key leadership role in the development and implementation of OMB's new *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). The Uniform Guidance will affect awards that NSF and all other federal grant-making agencies make on or after December 26, 2014. As an integral member of the interagency COFAR group, NSF represented the perspective of other smaller agencies that administer grants and cooperative agreements, as well as that of our stakeholder

communities. This consolidation of eight separate OMB circulars into one set of guidance represents the most significant reform of federal grants policy in decades. The Uniform Guidance (2 CFR Part 200) streamlines the federal government's guidance on administrative requirements, cost principles, and audit requirements for federal awards. The new format is designed to improve the clarity and accessibility of information, ease the administrative burden associated with the administration of federal awards, and strengthen oversight of federal funds to reduce risks of fraud, waste and abuse.

- NSF took substantive steps this year to further strengthen our internal controls for cost management of large facility projects. Policies were issued to ensure that the review of each potential awardee's cost proposal is thoroughly documented and includes a full justification for inclusion of each item of cost in the award amount. Requirements also add enhanced rigor to the agency's process to determine the adequacy of the awardee's accounting system to successfully manage a large facility construction award. Guidance on post-award incurred cost reviews ensures that a risk-based approach is taken that considers factors including the awardee's current accounting controls and recent audits, but also provides minimum standards for reviewing data during performance. These new policies, and additional strengthened procedures planned for FY 2015, will help ensure that NSF continues to meet its stewardship responsibility of ensuring that large facility projects are responsibly managed.
- FY 2014 was NSF's first full year of processing award payments using the Award Cash Management System (ACM\$). Awardee institutions submitted and received payment for more than 785,000 award level disbursements totaling more than \$6.35 billion. ACM\$ has been routinely praised by awardee institutions for its user friendliness, efficiency, and improved access to award financial information. ACM\$ provides both awardees and NSF with almost real-time financial data, thereby generating a more realistic picture of financial activity as it occurs. Looking toward the future, the financial data ACM\$ is generating is leading NSF to explore new approaches to monitoring the financial activity of awards throughout their lifecycle. This has given rise to consideration of more robust award financial lifecycle reviews and the possibility for a more proactive approach to identifying potential financial issues at the award level. Initiatives in the sphere of enhanced award financial information are expected to contribute significantly toward NSF's overall objectives for continual improvements in transparency and accountability of federal funds.

NSF's commitment to accountability reporting, transparency, and good government was recognized for the second consecutive year by the Association of Government Accountants, which awarded NSF's *FY 2013 Performance and Financial Highlights* with a Certificate of Excellence in Member-Centric Reporting. Financial accountability and effective business processes underpin our programmatic activities and are critical to the achievement of the agency's mission. I welcome your feedback on how we can make this report more informative to our stakeholders and readers.

/s/

**MARTHA A. RUBENSTEIN**


December 15, 2014



**National Science Foundation • Office of Inspector General**  
4201 Wilson Boulevard, Suite I-1135, Arlington, Virginia 22230

TO: Dr. France Córdova  
Director, National Science Foundation

Dr. Dan E. Arvizu  
Chair, National Science Board

FROM: Allison Lerner   
Inspector General, National Science Foundation

DATE: December 13, 2014

SUBJECT: Audit of the National Science Foundation's  
Fiscal Years 2014 and 2013 Financial Statements

This memorandum transmits CliftonLarsonAllen LLP's financial statement audit report of the National Science Foundation (NSF) for Fiscal Years 2014 and 2013.

**Results of Independent Audit**

The Chief Financial Officer's (CFO) Act of 1990 (P.L. 101-576), as amended, requires NSF's Inspector General or an independent external auditor, as determined by the Inspector General, to audit NSF's financial statements. Under a contract monitored by the Office of Inspector General (OIG), CliftonLarsonAllen LLP (CliftonLarsonAllen), an independent public accounting firm, performed audits of NSF's Fiscal Years 2014 and 2013 financial statements. The contract required that the audits be performed in accordance with the *Government Auditing Standards* issued by the Comptroller General of the United States and the United States Office of Management and Budget (OMB) Bulletin 14-02, *Audit Requirements for Federal Financial Statements*.

CliftonLarsonAllen issued an unmodified opinion on NSF's financial statements. In its Report on Internal Control over Financial Reporting, CliftonLarsonAllen did not report any material weaknesses in internal control; however, it did report two significant deficiencies in internal control. One significant deficiency, initially identified in 2011, relates to NSF's monitoring of construction type cooperative agreements. The second significant deficiency relates to NSF's Grant Accrual Accounting Estimation Process. CliftonLarsonAllen also reported that there were no instances of noncompliance with certain provisions of laws, regulations, contracts and grant agreements it tested, including those relating to the financial management systems requirements of the Federal Financial Management Improvement Act of 1996 (FFMIA).

NSF management's response, dated December 13, 2014, follows CliftonLarsonAllen's report.

## Evaluation of CliftonLarsonAllen's Audit Performance

To fulfill our responsibilities under the CFO Act of 1990, as amended, and other related federal financial management requirements, the OIG:

- Reviewed CliftonLarsonAllen's approach and planning of the audit;
- Evaluated the qualifications and independence of CliftonLarsonAllen and its auditors;
- Monitored the progress of the audit at key points;
- Coordinated periodic meetings with NSF management to discuss audit progress, findings, and recommendations;
- Reviewed CliftonLarsonAllen's audit report to ensure compliance with *Government Auditing Standards* and OMB Bulletin No. 14-02; and
- Coordinated issuance of the audit report.

CliftonLarsonAllen is responsible for the attached Independent Auditor's Report dated December 13, 2014, and the conclusions expressed in the report. We do not express any opinion on NSF's financial statements; or conclusions on the effectiveness of internal control or on compliance with laws, regulations, contracts and grant agreements.

The OIG appreciates the courtesies and cooperation NSF extended to CliftonLarsonAllen and the OIG staff during the audit. If you or your staff has any questions, please contact me or Dr. Brett M. Baker, Assistant Inspector General for Audit on 703-292-2985.

Attachment

cc: Dr. Ruth David, Chair, Audit and Oversight Committee



## INDEPENDENT AUDITORS' REPORT

National Science Foundation:  
Inspector General  
Director

Chair of National Science Board

### Report on the Financial Statements

We have audited the accompanying financial statements of the National Science Foundation (NSF), which comprise the balance sheets as of September 30, 2014 and 2013, and the related statements of net cost and changes in net position, and the statements of budgetary resources for the years then ended, and the related notes to the financial statements (financial statements).

#### ***Management's Responsibility for the Financial Statements***

NSF management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America (U.S.) and the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

#### ***Auditors' Responsibility***

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the U.S.; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, and Office of Management and Budget (OMB) Bulletin No. 14-02, *Audit Requirements for Federal Financial Statements* (OMB Bulletin 14-02). Those standards and OMB Bulletin 14-02 require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of

## INDEPENDENT AUDITORS' REPORT (Continued)

significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

We are also responsible for applying certain limited procedures, which are described below, with respect to the Required Supplementary Information (RSI) and other information included with the financial statements.

### ***Opinion on the Financial Statements***

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the National Science Foundation as of September 30, 2014 and 2013, and its net costs, changes in net position, and budgetary resources for the years then ended, in accordance with accounting principles generally accepted in the U.S.

### ***Other Matters***

#### ***Required Supplementary Information***

Accounting principles generally accepted in the U.S. issued by the Federal Accounting Standards Advisory Board (FASAB) require that NSF's Management Discussion and Analysis (MD&A), and other RSI listed in section II of the table of contents, be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by FASAB, which considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the MD&A and other RSI in accordance with auditing standards generally accepted in the U.S., which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the MD&A and other RSI because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

#### ***Other Information***

As noted in the table of contents sections i, ii, v, section II - Schedule of Spending, and III – Appendices, NSF's Annual Financial Report (AFR) contains a wide range of information other than the required financial statements. This information is presented for purposes of additional analysis and is not a required part of the financial statements or RSI. This other information has not been subjected to the auditing procedures applied in the audit of the financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

## **Reports on Internal Control over Financial Reporting and on Compliance Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards***

### ***Report on Internal Control over Financial Reporting***

In planning and performing our audit of the financial statements, we considered NSF's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of NSF's

## INDEPENDENT AUDITORS' REPORT (Continued)

internal control or on management's statement of assurance on internal control included in the MD&A. Accordingly, we do not express an opinion on the effectiveness of NSF's internal control or on management's statement of assurance on internal control which is included in the MD&A.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of NSF's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies and therefore, material weaknesses or significant deficiencies may exist that were not identified. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. We did identify certain deficiencies in internal control, described in Exhibit A, that we consider to be significant deficiencies.

### ***Report on Compliance***

As part of obtaining reasonable assurance about whether NSF's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, consistent with our professional responsibilities discussed below.

The results of our tests, exclusive of those required by the Federal Financial Managers Improvement Act (FFMIA) as discussed below, disclosed no instances of noncompliance or other matters that are required to be reported in accordance with *Government Auditing Standards* or OMB Bulletin 14-02.

### **Compliance with FFMIA Requirements**

Under FFMIA, we are required to report whether the financial management systems used by NSF substantially comply with FFMIA Section 803(a) requirements. To meet this requirement, we performed tests of compliance with the (1) Federal financial management systems requirements, (2) applicable Federal accounting standards, and (3) the United States Standard General Ledger (USSGL) at the transaction level. However, providing an opinion on compliance with FFMIA was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests of FFMIA Section 803(a) requirements disclosed no instances in which NSF's financial management systems did not substantially comply with (1) Federal financial management systems requirements, (2) applicable Federal accounting standards, or (3) the USSGL at the transaction level.

### ***Management's Responsibility for Internal Control and Compliance***

Management is responsible for (1) evaluating the effectiveness of internal control over financial reporting based on criteria established under the Federal Managers' Financial Integrity Act (FMFIA), (2) providing a statement of assurance on the overall effectiveness on internal control over financial reporting, (3) ensuring NSF's financial management systems are in substantial

## INDEPENDENT AUDITORS' REPORT (Continued)

compliance with FFMIA requirements, and (4) complying with other applicable laws, regulations, contracts and grant agreements.

### ***Auditors' Responsibilities***

We are responsible for: (1) obtaining a sufficient understanding of internal control over financial reporting to plan the audit; (2) testing whether NSF's financial management systems substantially comply with the FFMIA requirements referred to above; and (3) testing compliance with certain provisions of laws, regulations, contracts and grant agreements that could have a direct and material effect on the determination of financial statement amounts, including FFMIA, and applicable laws and regulations for which OMB Bulletin 14-02 requires testing.

We did not evaluate all internal controls relevant to operating objectives as broadly established by the FMFIA, such as those controls relevant to preparing statistical reports and ensuring efficient operations. We limited our internal control testing to testing controls over financial reporting. Because of inherent limitations in internal control, misstatements due to error or fraud, losses, or noncompliance may nevertheless occur and not be detected. We also caution that projecting our audit results to future periods is subject to risk that controls may become inadequate because of changes in conditions or that the degree of compliance with controls may deteriorate. In addition, we caution that our internal control testing may not be sufficient for other purposes.

We did not test compliance with all laws, regulations, contracts and grant agreements applicable to NSF. We limited our tests of compliance to certain provisions of laws, regulations, contracts and grant agreements that could have a direct and material effect on the determination of financial statement amounts and applicable laws and regulations for which OMB Bulletin 14-02 requires testing. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. We caution that noncompliance may occur and not be detected by these tests and that such testing may not be sufficient for other purposes. Also, our work on FFMIA would not necessarily disclose all instances of noncompliance with FFMIA requirements.

### ***Status of Prior Year's Control Deficiency***

Our FY 2013 Independent Auditors' Report dated December 12, 2013 included a significant deficiency entitled *Monitoring of Construction Type Cooperative Agreements*. Recommendation number 2 of that significant deficiency, relating only to the use a contingency fund budgets in Cooperative Agreements, has been closed due to a clarification received from OMB on this matter. However, all other FY 2013 significant deficiency recommendations remain open, and have been repeated in Significant Deficiency number 1 in Exhibit A of this report.

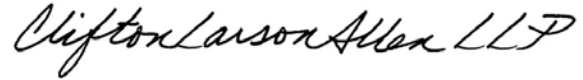
### ***Purpose of the Report on Internal Control over Financial Reporting and the Report on Compliance***

The purpose of the Report on Internal Control over Financial Reporting and the Report on Compliance sections of this report is solely to describe the scope of our testing of internal control and compliance and the result of that testing, and not to provide an opinion on the effectiveness of NSF's internal control or on compliance. These reports are an integral part of an audit performed in accordance with *Government Auditing Standards* in considering NSF's internal control and compliance. Accordingly, these reports are not suitable for any other purpose.

## INDEPENDENT AUDITORS' REPORT (Continued)

### Management's Response to Independent Auditor's Report

Management's response to the findings identified in our report is presented in Exhibit B. We did not audit NSF's response and, accordingly, we express no opinion on it.

A handwritten signature in cursive script that reads "CliftonLarsonAllen LLP".

**CliftonLarsonAllen LLP**

Calverton, Maryland  
December 13, 2014

# INDEPENDENT AUDITORS' REPORT (Continued)

## EXHIBIT A NATIONAL SCIENCE FOUNDATION Significant Deficiencies September 30, 2014

### 1. Monitoring of Construction Type Cooperative Agreements

#### **Background and Control Deficiency Criteria:**

As of September 30, 2014, NSF had 18 open construction type cooperative agreements (CA) aggregating approximately \$2.1 billion in obligations, which includes approximately \$340 million in contingency funds, representing approximately 16 percent of the total award obligation amount.

Beginning with our fiscal year (FY) 2010 Independent Auditors' Report (Auditor Report), we noted a variety of deficiencies in NSF's internal controls relating to the monitoring of construction type CAs, substantially comprised of deficiencies detailed in NSF Office of Inspector General (OIG) and Defense Contract Audit Agency (DCAA) audit reports. However, agreement on a complete plan of action to resolve these matters had not been achieved as of September 30, 2013.

In FY 2014, some progress was made by NSF in designing procedures to correct certain weaknesses noted by the OIG and DCAA (on behalf of the OIG) pertaining to future awards of CAs. However, some of those procedures were implemented late in the fiscal year and we were unable to validate the effectiveness of such procedures. Also, as confirmed by both our tests and additional CA audits completed by the OIG and DCAA in FY 2014, little progress has been made in addressing the issues concerning current CAs with contingency funding as of September 30, 2014.

Given the substantial disagreement over these issues between the OIG and NSF management, and pursuant to guidelines set forth in the Office of Management and Budget (OMB) Circular A-50 *Audit Follow-Up*, the OIG issued an Escalation Memorandum to the NSF's Audit Follow-up Official (AFO) in May 2014 requesting final resolution of these matters. The Memorandum outlined five recommendations made by the OIG to address the control deficiencies that remain outstanding from the prior years' OIG and DCAA audit reports, and our prior Independent Auditors' Reports. As of the date of our Independent Auditors' Report, NSF's AFO had only partially resolved one of those five OIG recommendations, relating to the use of contingency funds in award budgets.

Accordingly, most of the control deficiency conditions identified in our FY 2013 Audit Report have been repeated in this FY 2014 Audit Report.

#### **Conditions:**

A. This section relates to the prior year's described conditions which continue to exist in FY 2014.

#### 1. **DCAA Audits of Construction Type Cooperative Agreements with Contingency Funds**

a) The DCAA cost proposal audits for three projects and the OIG's Report No. 12-2-010 issued in prior years identified grantee proposed costs of \$1.3 billion, which included contingency costs totaling approximately \$234 million. DCAA reported

**INDEPENDENT AUDITORS' REPORT (Continued)**  
**Exhibit A (Continued)**

that documentation was inadequate for \$190 million of that total contingency cost amount. The proposed total cost of approximately \$732 million for two of these projects was also not considered acceptable for negotiating a fair and reasonable price.

DCAA noted the following additional deficiencies during these audits:

- Awardees could draw down contingency funds without advance approval by NSF.
  - Awardee's accounting system and estimating practices were not sufficient to adequately track specific project costs.
- b) DCAA also performed an incurred cost audit for a project involving three CAs to the same awardee, noting the following:
- Awardee's \$218 million in claimed costs did not comply with federal requirements applicable to the CAs. DCAA also reported internal control weaknesses regarding the awardee's change control process, instances where the awardee did not comply with Cost Accounting Standards (CAS) and the awardee's own accounting practices. As a result, DCAA questioned costs of \$2.1 million.
  - Awardee's accounting records did not segregate actual contingency costs from other accumulated costs. For example, the project included a contingency budget of approximately \$44 million; however, actual contingency costs were not accumulated and tracked separately in the accounting records. Therefore, the auditors could not tell specifically how the budgeted contingency costs were expended.
- c) Another audit performed by the NSF OIG, and detailed in its Alert Memo Report dated September 28, 2012, (No. 12-6-001) on *NSF's Management of Cooperative Agreements*, noted similar findings to those included in the DCAA audits referenced above, reiterating concerns about the adequacy of NSF's review of proposed costs, the proposer's financial management capabilities, and NSF's post-award monitoring.

The May 2014 OIG Escalation Memorandum focused on recommendations relating to pre-award and post-award cost surveillance measures as follows:

1. Obtain updated cost estimates and audits of awardee's proposed budget and cost accounting system/practices prior to award for CAs valued at over \$50 million.
2. Remove unallowable contingency from proposed budgets and ensure that internal contingency policies and procedures reflect OMB cost principles.
3. Require annual incurred cost submissions and incurred cost audits for CAs in excess of \$50 million.
4. Require awardees to properly account for contingency funds consistent with their estimates and separately track budgeted versus actual contingency costs; and retain control over funds budgeted for unforeseeable events and release funds only when the awardee demonstrates a bona fide need supported by verifiable cost data.
5. That NSF management, using a risk-based approach, develop end-to-end cost surveillance policies and procedures for its CAs to ensure adequate stewardship

## **INDEPENDENT AUDITORS' REPORT (Continued)**

### **Exhibit A (Continued)**

over federal funds. At a minimum, NSF should implement such increased monitoring for its largest CAs valued at more than \$50 million.

Based on clarified guidance from OMB (2 Code of Federal Regulations, Part 200 – *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*, (issued in December 2013) regarding the conceptual use of contingency funds in award budgets (item # 2 above), NSF's AFO concluded that the OIG recommendation was resolved. We agree with that specific partial resolution that contingency can be budgeted for and included in the award; however, such resolution did not address the amount of unsupported contingency costs that were reported in prior year audits. The AFO's resolution conclusion was made provided that the contingency was estimated using broadly-accepted methodologies and was well documented. The AFO indicated that to ensure that these conditions are met, NSF needs to finalize and implement its proposed new policy *Contingency Development, Use and Management*, which is intended to adequately monitor the development and management of contingency funds in award budgets. Such new policy has not yet been finalized, and we will review it for adequacy during the FY 2015 audit.

Given the problems identified in previous DCAA and OIG audits regarding the lack of adequate supporting documentation for proposed costs including contingency funds, the contingency fund development use and management concept in the Audit Follow-up Official's decision on this matter is critical to the effectiveness of NSF's internal controls going forward over all awarded funds, not just those relating to contingency matters. We will evaluate the effectiveness of this new policy during the FY 2015 financial statements audit. Since the OIG Escalation Memorandum recommendation also discussed the allowability of unsupported contingency costs, which was not addressed by the AFO, we consider this recommendation only partially resolved.

NSF issued some policies and procedures late in the fiscal year to address some of the causes of the above conditions and continues to develop others; however, these conditions identified in prior years remain largely uncorrected at September 30, 2014.

- B.** The following sections describe conditions, identified by both us and the OIG during the FY 2014 audit, that demonstrate that the CA control deficiencies reported in prior years continue to exist.

**1. OIG Alert Memo and DCAA Audit Report**

Pursuant to a CA established in August 2014, NSF awarded \$468 million (only \$27.5 million was obligated as September 30, 2014) to a non-profit entity for a large construction project. The NSF OIG reviewed this agreement and issued an Alert Memo Report (No. 14-3-002) dated September 30, 2014, concluding that NSF approved the project without sufficient information to determine the reasonableness of the estimated project costs. The OIG also referenced a separate audit report which indicated that the non-profit organization managing this project did not have an effective process for preparing adequate cost proposals.

The NSF OIG issued Audit Report (No.14-1-005) in September 2014, detailing the results of a supplemental audit, initially performed by DCAA in 2011, relating to a large construction project with contingency funding. DCAA has now disclaimed an opinion on the adequacy of the cost proposal due to the significance of the cost



**INDEPENDENT AUDITORS' REPORT (Continued)**  
**Exhibit A (Continued)**

estimating deficiencies found in the proposal, including unsupported estimates, outdated vendor quotes, and unallowable contingencies.

These FY 2014 OIG Reports are currently going through the audit resolution process with NSF management.

**2. Internal Controls for Monitoring Use of Contingency Funds**

In addition to the DCAA and OIG audits discussed above, our specific internal control testing procedures performed in FY 2014, which included the examination of several CAs with contingency funds, continue to note the following exceptions:

- a) Awardees can draw on the contingency funds budget without prior NSF approval, if the amount is below an established threshold. Above this established threshold, advance approval is required. However, systematic barriers to prevent an awardee from drawing an amount in excess of the threshold without advance approval were not in place at September 30, 2014. A system control of that nature would reduce the risk of contingency funds being used for unallowable purposes.
- b) NSF's accounting system shows the CA award amount in total without separate identification of the contingency funding portion of such award. NSF relies on information provided by the awardees to track the allocation of the contingency funds to budgeted line items in the award. However, NSF does not require the awardee to track its contingency expenditures and, accordingly, it cannot track the expenditure of contingency funds to ensure that they are in line with the awarded budgeted amounts. This lack of control increases the risk that contingency funds may be used for non-contingent type expenditures or out-of-scope changes, which could therefore be disallowed during an audit.
- c) For certain CAs examined in a previous fiscal year, we noted the following matters that remain uncorrected by NSF in FY 2014:
  - An awardee did not report the allocation of the contingency budget authority to a specific project on a monthly basis as required by NSF policy. This lack of information on how the contingency funds are being spent limits NSF management's ability to assess how and when the contingency funds are being used; and
  - NSF was unable to provide evidence to document that it had approved an awardee's change order process for managing contingency expenditures. A requirement to document NSF's approval of the awardee's change order process for managing contingency expenditures and requests above the stipulated threshold would reduce the risk of funds being disbursed for non-contingent type expenditures, out-of-scope changes, or costs that are unreasonable, unallowable, or unallocable.

NSF continues to address the causes of the above conditions; however, the conditions remain largely uncorrected at September 30, 2014.

\*\*\*\*\*

In summary, as noted above, the causes of the prior year conditions described in Section A of this Significant Deficiency remain largely uncorrected at September 30, 2014, either due to NSF's continued disagreement with the severity of the conditions, its timeframe for implementation of new procedures to rectify the conditions, or the fact that management has not identified specific corrective actions that would apply to existing CAs.

## INDEPENDENT AUDITORS' REPORT (Continued)

### Exhibit A (Continued)

The unresolved status of the OIG Escalation Memorandum, along with the new OIG Alert Memoranda, DCAA audit reports, and the results of our internal control testing in FY 2014, continue to indicate that there are significant risks relating to the validity of budgeted contingency funds in all CAs, and to the adequacy of NSF's controls over monitoring these CAs in general.

The status of each of the recommendations relating to the repeat conditions noted above and NSF's corrective action are summarized in Exhibit B of this Audit Report.

#### **Recommendations:**

NSF has not fully addressed the matters included in the OIG's Escalation Memorandum issued in May 2014. The delay in resolving matters detailed in the Escalation Memorandum has slowed the implementation of changes to NSF's CA award procedures and, accordingly, has hindered its auditors' ability to assess the adequacy of the procedures that NSF has implemented or will implement regarding post-award monitoring and standardized costs analysis guidance.

Accordingly, we recommend the following actions be taken immediately to finally resolve the CA audit findings initially identified in our FY 2010 Audit Report:

1. NSF's Director's Office should work closely with the OIG to quickly resolve the remaining recommendations in the OIG's May 2014 Escalation Memorandum through the audit follow-up process required under OMB Circular A-50, *Audit Follow-up*. Such resolution should include clarifying the FY 2014 resolution conclusion regarding the close out of the second recommendation in the OIG's Escalation Memorandum by addressing the amount of unsupported contingency costs that *were reported* in prior year audits.
2. Finalize NSF's proposed new policy *Contingency Development, Use and Management*, which is intended to adequately monitor the development and management of contingency funds in award budgets.
3. Reform NSF policies, based on cost principles described in OMB's Uniform Guidance (2 CFR, Part 200), relating to grants and CAs, including those relating to budgeted contingency amounts in its awards.
4. Fully implement its corrective action plans, and test the effectiveness of new policies and procedures implemented in late FY 2014 and FY 2015. Such plan should include:
  - a) Revisions to its proposal review process to ensure that the issues raised by DCAA and the OIG in their reports and memos are considered by NSF before accepting an entity's cost proposal as a basis for the issuance of an award/CA;
  - b) Strengthening controls over all CA disbursements, especially with respect to the oversight of draws on contingency funds;
  - c) Ensuring that awardees are required to submit monthly reports showing the allocation of the contingency budget authority to the second level of detail within the project's Work Breakdown Structure;
  - d) Documenting NSF's approval of the awardee's process for managing contingency expenditures and requests above the stipulated threshold; and
  - e) Matters specifically identified in the FY 2014 OIG Audit Reports detailing its review of certain large constructions projects - No.14-1-005 and No. 14-3-002.
5. Revise CAs to require the awardee to track and report such contingency expenditures to NSF to ensure that contingency funds budgeted are properly used for contingent type events.
6. Implement a process to separately track contingency funds within NSF's accounting system.

**INDEPENDENT AUDITORS' REPORT (Continued)**  
**Exhibit A (Continued)**

## **2. Grant Accrual Accounting Estimation Process**

### **Background and Criteria:**

Accounting principles generally accepted in the U.S. require entities to prepare financial statements on an accrual basis and such principles also require entities to validate assumptions made in determining significant estimates included in those financial statements.

NSF's grant cost is comprised of two components: 1) actual grant expenditures reported by grantees through the draw process and 2) an estimate (accrual) of grantee expenditures incurred, but not yet reported to or drawn (IBNR) from NSF (grant accrued liability – referred to hereafter as IBNR liability). On point with this accrual matter, the Federal Accounting Standards Advisory Board (FASAB) Technical Release (TR 12) "*Accrual Estimates for Grant Programs*" specifically addresses the process for preparing accrual estimates for grant programs.

Prior to FY 2013, NSF based the IBNR liability on historical data reported by grantees on a quarterly basis. At September 30, 2012, NSF estimated the IBNR liability at \$446 million. This estimate was validated by comparing reports submitted by the grantee in the first quarter of FY 2013 to the amount reflected in NSF's financial statements at September 30, 2012.

In June 2013, NSF adopted the use of a new grantee cash request and expenditure reporting system, Award Cash Management Service (ACM\$), which significantly changed the manner and timing by which grantees could draw funds and report expenditures for their awards. Upon implementation of ACM\$, long standing historical data reported by grantees and used prior to FY 2013 for IBNR liability accounting purposes could not be utilized in the same manner, and such information was no longer required to be reported by the grantees going forward. This situation required NSF to begin accumulating grantee payment/expenditure data under ACM\$ to revise its methodology for estimating the IBNR. However, consistent historical grantee spending data under ACM\$ was limited and inconclusive for NSF to use in confidently estimating grantee spending patterns and the IBNR liability for the remainder of fiscal year 2013.

Given the lack of reliable historical spending data at September 30, 2013, NSF estimated the FY 2013 IBNR liability using the average daily ACM\$ draws during the last quarter of the fiscal year for the three business days before the end of September 2013 (tied to the Department of Treasury's year end transaction cut-off period). Such method resulted in an IBNR liability of \$91 million at September 30, 2013. Even though NSF performed some analysis of prior year grantee spending data, it was not sufficient to adequately validate that IBNR liability amount to fully comply with the provisions in FASAB TR12 in FY 2013. Accordingly, through separate analysis of all grantee draw information available during the FY 2013 audit, we determined that the IBNR liability amount should have been higher. However, the increase needed in the IBNR liability on NSF's FY 2013 financial statements was not considered material, and NSF's FY 2013 financial statements were not adjusted.

Statistical sampling has proven useful in sampling large diverse populations, and applying tailored extrapolations directly to those diverse population groups, while only testing a very small percentage of all population units. That tool and certain other financial data available

## **INDEPENDENT AUDITORS' REPORT (Continued)**

### **Exhibit A (Continued)**

in FY 2013, were not used by NSF in estimating an IBNR liability at September 30, 2013. Accordingly, at the conclusion of the FY 2013 audit, we recommended that NSF consider using statistical sampling tools in future years to validate its IBNR liability in support of its development of a methodology to estimate the IBNR liability under ACM\$ going forward.

#### **Conditions:**

In response to our concern raised during the FY 2013 audit regarding NSF's methodology to estimate the IBNR liability, and to obtain more historical data to fully comply with TR 12, in June 2014 NSF performed a statistical validation of the IBNR liability as of September 30, 2013 (referred to as a FY 2013 "Look Back"). This validation process included obtaining financial data confirmations with many grantees and resulted in an IBNR liability estimate significantly higher than the \$91 million recorded in NSF's FY 2013 financial statements.

NSF determined that a significant portion of the increase was due to not giving full consideration to all grantee spending data available to NSF during the FY 2013 financial statement preparation process and, therefore, constituted an error. As a result, the amount in error was incorrectly reflected in NSF's FY 2014 operating results. As we had projected in the FY 2013 audit, the increase attributable to FY 2013 operations was not material to NSF's FY 2013 financial statements. However, the FY 2013 Look Back process clearly indicated that NSF's FY 2013 IBNR liability amount was not sufficient and the methodology to estimate the IBNR liability used in FY 2013 required substantial refinement going forward.

In response to the results of the FY 2013 Look Back process, NSF performed a similar statistically based calculation of the IBNR liability at September 30, 2014. That process resulted in NSF recording a statistically valid IBNR liability of \$250 million in its FY 2014 financial statements. Due to reporting deadlines in future years, NSF will not be able to perform similar calculations at future fiscal year ends.

Due to the short time that ACM\$ has been in place, NSF has been unable to fully evaluate grantee spending patterns for use in developing a reliable and tested methodology to estimate its IBNR liability in FY 2015 and forward.

#### **Recommendations:**

##### **We recommend that NSF:**

1. Provide grantees with additional training/communication/enforcement of the ACM\$ program's "real time" draw of funds features, so that more consistent and reliable grantee spending pattern data can be obtained from the grantees over a period of several years.
2. Using the historical grantee spending pattern data, establish a new methodology to estimate the IBNR liability portion of NSF's annual grant cost, for use at June 30<sup>th</sup> and September 30<sup>th</sup> of the fiscal year.
3. Prior to developing sufficient reliable historical grantee spending pattern data, develop a plan to use statistically based analyses, and confirmation procedures with its grantees, to calculate an IBNR liability at some point during the fiscal year.
4. Develop procedures to validate the final determined IBNR liability estimate at June 30<sup>th</sup> and/or September 30<sup>th</sup>, as necessary to comply with TR 12, to ensure that assumptions used in the methodology to estimate the IBNR liability are reasonable. This could be accomplished by periodically comparing the IBNR liability estimates with subsequent grantee reporting in ACM\$, surveys, or some other communication with its grantees.

# INDEPENDENT AUDITORS' REPORT (Continued)

**EXHIBIT B**  
**NATIONAL SCIENCE FOUNDATION**  
**Management's Response to Independent Auditor's Report**  
**September 30, 2014**



**OFFICE OF BUDGET, FINANCE & AWARD MANAGEMENT**

**MEMORANDUM**

Date: DEC 13 2014

To: Allison Lerner, Inspector General

From: Martha A. Rubenstein, Chief Financial Officer

Subject: Management's Response to Independent Auditor's Report for Fiscal Year (FY) 2014

I am pleased that the FY 2014 audit concluded that the National Science Foundation's (NSF) financial statements and notes were presented fairly, in all material respects, and in conformity with U.S. generally accepted accounting principles. This is NSF's 17<sup>th</sup> consecutive unmodified audit opinion.

This was another extremely challenging year for successfully completing the audit due to the agency's transition to a new financial management system (iTRAK). We managed to overcome these challenges as a result of the hard work and dedication of NSF's staff, including the efforts of your staff and audit contractor.

During FY 2014 NSF continued to make progress in resolving the disagreement with the Office of Inspector General detailed in its reports on our construction type cooperative agreements with contingency budgets. For example, NSF's Audit Follow-up Official (AFO) determined that NSF's practices properly follow Office of Management and Budget newly clarified guidance by including contingency funding in awards. However, certain recommendations remain open in those OIG proposal audit reports and, accordingly, the NSF AFO is continuing to review those remaining recommendations for resolution.

We generally agree with the findings and recommendations in the report concerning NSF's grant accrual accounting estimation process. Awardees' usage of NSF's Award Cash Management Service resulted in timelier financial data and improved status of funds monitoring. However, it also required us to develop an alternate set of procedures to estimate grant expenditures through the end of FY 2014. During this process NSF performed extensive analysis and research, including a statistical validation of grantee

**INDEPENDENT AUDITORS' REPORT (Continued)**  
**Exhibit B (Continued)**

expenditures in FY 2013. In FY 2014, in response to the results of the FY 2013 validation process, NSF performed a similar statistically based calculation to determine our grant accrued liability at September 30, 2014.

In the coming year, we will continue to work to strengthen our controls for awarding and managing construction type cooperative agreements. We will also concentrate on further improving NSF's grant accrual accounting estimation process.

We look forward to a productive and professional collaboration with the OIG and your contract auditors, to address the areas identified in your audit report. If you have any questions concerning our responses, please contact me at (703) 292-8200 or Shirl Ruffin, Deputy Chief Financial Officer at (703) 292-8280.

Copy: Dr. France Cordova



# **National Science Foundation**

## **PRINCIPAL FINANCIAL STATEMENTS**

As of and for the Years Ended  
September 30, 2014 and 2013

**National Science Foundation**  
**Balance Sheet**  
**As of September 30, 2014 and 2013**  
**(Amounts in Thousands)**

| <b>Assets</b>   | <u><b>2014</b></u>          | <u><b>2013</b></u>          |
|---|-----------------------------|-----------------------------|
| Intragovernmental Assets  |                             |                             |
| Fund Balance With Treasury (Note 2)                               | \$ 11,780,549               | \$ 11,586,927               |
| Accounts Receivable   | 2,222                       | 28,186                      |
| Advances  | 36,987                      | 52,656                      |
| Total Intragovernmental Assets                                    | <u>11,819,758</u>           | <u>11,667,769</u>           |
| Cash and Other Monetary Assets (Note 2)                           | 35,562                      | 31,284                      |
| Accounts Receivable, Net  | 2,184                       | 2,833                       |
| Advances  | 514                         | 228                         |
| General Property, Plant and Equipment, Net (Notes 3 and 4)        | 273,832                     | 268,489                     |
| <b>Total Assets</b>   | <b><u>\$ 12,131,850</u></b> | <b><u>\$ 11,970,603</u></b> |
| <b>Liabilities</b>  |                             |                             |
| Intragovernmental Liabilities                                     |                             |                             |
| Accounts Payable  | \$ 4,677                    | \$ -                        |
| Advances From Others  | 16,594                      | 22,319                      |
| Other Intragovernmental Liabilities                               | 3,605                       | 4,243                       |
| Total Intragovernmental Liabilities                               | <u>24,876</u>               | <u>26,562</u>               |
| Accounts Payable  | 62,443                      | 95,919                      |
| FECA Employee Benefits  | 1,330                       | 1,424                       |
| Environmental and Disposal Liabilities (Note 6)                   | 18,247                      | 18,247                      |
| Accrued Liabilities - Grants (Note 7)                             | 250,333                     | 91,091                      |
| Accrued Liabilities - Contracts, Payroll, and Other               | 5,454                       | 8,813                       |
| Accrued Annual Leave  | 17,576                      | 17,790                      |
| <b>Total Liabilities</b>  | <b><u>\$ 380,259</u></b>    | <b><u>\$ 259,846</u></b>    |
| <b>Net Position</b>   |                             |                             |
| Unexpended Appropriations - Other Funds                           | \$ 11,057,969               | \$ 11,047,853               |
| Cumulative Results of Operations - Other Funds                    | 289,423                     | 294,224                     |
| Cumulative Results of Operations - Dedicated Collections (Note 8) | 404,199                     | 368,680                     |
| <b>Total Net Position</b>   | <u>11,751,591</u>           | <u>11,710,757</u>           |
| <b>Total Liabilities and Net Position</b>                         | <b><u>\$ 12,131,850</u></b> | <b><u>\$ 11,970,603</u></b> |

*The accompanying notes are an integral part of these statements.*



**National Science Foundation**  
**Statement of Net Cost**  
**For the Years Ended September 30, 2014 and 2013**  
**(Amounts in Thousands)**

| <b>Program Costs (Note 9)</b>                                   | <b><u>2014</u></b>         | <b><u>2013</u></b>         |
|---|----------------------------|----------------------------|
| Research and Related Activities                                 |                            |                            |
| Gross Costs   | \$ 6,050,953               | \$ 6,035,128               |
| Less: Earned Revenues   | <u>(100,782)</u>           | <u>(101,802)</u>           |
| <b>Net Research and Related Activities</b>                      | <b><u>5,950,171</u></b>    | <b><u>5,933,326</u></b>    |
| Education and Human Resources                                   |                            |                            |
| Gross Costs   | \$ 877,314                 | \$ 796,459                 |
| Less: Earned Revenues   | <u>(3,616)</u>             | <u>(5,406)</u>             |
| <b>Net Education and Human Resources</b>                        | <b><u>873,698</u></b>      | <b><u>791,053</u></b>      |
| Major Research Equipment and Facilities Construction            |                            |                            |
| Gross Costs   | \$ 292,661                 | \$ 225,403                 |
| Less: Earned Revenues   | <u>-</u>                   | <u>-</u>                   |
| <b>Net Major Research Equipment and Facilities Construction</b> | <b><u>292,661</u></b>      | <b><u>225,403</u></b>      |
| Donations and Dedicated Collections                             |                            |                            |
| Gross Costs   | \$ 140,121                 | \$ 167,289                 |
| Less: Earned Revenues   | <u>-</u>                   | <u>-</u>                   |
| <b>Net Donations and Dedicated Collections</b>                  | <b><u>140,121</u></b>      | <b><u>167,289</u></b>      |
| <b>Net Cost of Operations (Notes 9 and 16)</b>                  | <b><u>\$ 7,256,651</u></b> | <b><u>\$ 7,117,071</u></b> |

*The accompanying notes are an integral part of these statements.*

**Principal Financial Statements**  
**September 30, 2014 and 2013**

**National Science Foundation**  
**Statement of Changes in Net Position**  
**For the Year Ended September 30, 2014**  
**(Amounts in Thousands)**

|   | <u>2014</u>                  |                    |                    |
|---|------------------------------|--------------------|--------------------|
|   | <u>Funds From</u>            |                    |                    |
|   | <u>Dedicated Collections</u> | <u>All Other</u>   | <u>Total</u>       |
| <b>Cumulative Results of Operations</b>                                       |                              |                    |                    |
| <b>Beginning Balances (Note 8)</b>  | \$ 368,680                   | 294,224            | 662,904            |
| Adjustments   |                              |                    |                    |
| Changes in Accounting Principle (Note 6)                                      | -                            | -                  | -                  |
| <b>Beginning Balances - Adjusted</b>  | <b>368,680</b>               | <b>294,224</b>     | <b>662,904</b>     |
| <b>Budgetary Financing Sources</b>  |                              |                    |                    |
| Appropriations Used   | -                            | 7,115,793          | 7,115,793          |
| Non-exchange Revenue  | -                            | 1,455              | 1,455              |
| Donations   | -                            | 32,453             | 32,453             |
| Appropriated Funds from Dedicated Collections Transferred In / (Out) (Note 8) | 128,053                      | -                  | 128,053            |
| <b>Other Financing Sources</b>  |                              |                    |                    |
| Transfers In / (Out) Without Reimbursement                                    | -                            | -                  | -                  |
| Imputed Financing From Costs Absorbed By Others                               | -                            | 11,172             | 11,172             |
| Other   | -                            | (1,557)            | (1,557)            |
| <b>Total Financing Sources</b>  | <b>128,053</b>               | <b>7,159,316</b>   | <b>7,287,369</b>   |
| <b>Net Cost of Operations (Notes 8 and 9)</b>                                 | <b>(92,534)</b>              | <b>(7,164,117)</b> | <b>(7,256,651)</b> |
| <b>Cumulative Results of Operations (Note 8)</b>                              | <b>\$ 404,199</b>            | <b>289,423</b>     | <b>693,622</b>     |
| <b>Unexpended Appropriations</b>  |                              |                    |                    |
| <b>Beginning Balances</b>   | \$ -                         | 11,047,853         | 11,047,853         |
| <b>Budgetary Financing Sources</b>  |                              |                    |                    |
| Appropriations Received   | -                            | 7,171,918          | 7,171,918          |
| Rescissions and Cancelled Authority Adjustments (Note 10)                     | -                            | (46,009)           | (46,009)           |
| Appropriations Used   | -                            | (7,115,793)        | (7,115,793)        |
| <b>Total Budgetary Financing Sources</b>                                      | <b>-</b>                     | <b>10,116</b>      | <b>10,116</b>      |
| <b>Total Unexpended Appropriations</b>  | <b>-</b>                     | <b>11,057,969</b>  | <b>11,057,969</b>  |
| <b>Net Position</b>   | <b>\$ 404,199</b>            | <b>11,347,392</b>  | <b>11,751,591</b>  |

*The accompanying notes are an integral part of these statements.*

**Principal Financial Statements**  
**September 30, 2014 and 2013**

**National Science Foundation**  
**Statement of Changes in Net Position**  
**For the Year Ended September 30, 2013**  
**(Amounts in Thousands)**

|   | <b>2013</b>                  |                    |                    |
|---|------------------------------|--------------------|--------------------|
|   | <b>Funds From</b>            |                    | <b>Total</b>       |
|   | <b>Dedicated Collections</b> | <b>All Other</b>   |                    |
| <b>Cumulative Results of Operations</b>                                       |                              |                    |                    |
| <b>Beginning Balances (Note 8)</b>  | \$ 344,204                   | 342,743            | 686,947            |
| Adjustments   |                              |                    |                    |
| Changes in Accounting Principle (Note 6)                                      | -                            | (18,247)           | (18,247)           |
| <b>Beginning Balances - Adjusted</b>  | <b>344,204</b>               | <b>324,496</b>     | <b>668,700</b>     |
| <b>Budgetary Financing Sources</b>  |                              |                    |                    |
| Appropriations Used   | -                            | 6,945,406          | 6,945,406          |
| Non-exchange Revenue  | -                            | 2,413              | 2,413              |
| Donations   | -                            | 40,276             | 40,276             |
| Appropriated Funds from Dedicated Collections Transferred In / (Out) (Note 8) | 115,841                      | -                  | 115,841            |
| <b>Other Financing Sources</b>  |                              |                    |                    |
| Transfers In / (Out) Without Reimbursement                                    | -                            | 781                | 781                |
| Imputed Financing From Costs Absorbed By Others                               | -                            | 11,358             | 11,358             |
| Other   | -                            | (4,800)            | (4,800)            |
| <b>Total Financing Sources</b>  | <b>115,841</b>               | <b>6,995,434</b>   | <b>7,111,275</b>   |
| <b>Net Cost of Operations (Notes 8 and 9)</b>                                 | <b>(91,365)</b>              | <b>(7,025,706)</b> | <b>(7,117,071)</b> |
| <b>Cumulative Results of Operations (Note 8)</b>                              | <b>\$ 368,680</b>            | <b>294,224</b>     | <b>662,904</b>     |
| <br><b>Unexpended Appropriations</b>  |                              |                    |                    |
| <b>Beginning Balances</b>   | \$ -                         | 11,158,221         | 11,158,221         |
| <b>Budgetary Financing Sources</b>  |                              |                    |                    |
| Appropriations Received   | -                            | 7,393,100          | 7,393,100          |
| Rescissions and Cancelled Authority Adjustments (Note 10)                     | -                            | (558,062)          | (558,062)          |
| Appropriations Used   | -                            | (6,945,406)        | (6,945,406)        |
| <b>Total Budgetary Financing Sources</b>                                      | <b>-</b>                     | <b>(110,368)</b>   | <b>(110,368)</b>   |
| <b>Total Unexpended Appropriations</b>  | <b>-</b>                     | <b>11,047,853</b>  | <b>11,047,853</b>  |
| <b>Net Position</b>   | <b>\$ 368,680</b>            | <b>11,342,077</b>  | <b>11,710,757</b>  |

*The accompanying notes are an integral part of these statements.*

**Principal Financial Statements**  
**September 30, 2014 and 2013**

**National Science Foundation**  
**Statement of Budgetary Resources**  
**For the Years Ended September 30, 2014 and 2013**  
(Amounts in Thousands)

|  | <u>2014</u>                | <u>2013</u>                |
|--|----------------------------|----------------------------|
| <b>Budgetary Resources</b>   |                            |                            |
| Unobligated Balance - Brought Forward, October 1                       | \$ 293,444                 | \$ 277,140                 |
| Recoveries of Prior Year Unpaid Obligations                            | 119,284                    | 150,973                    |
| Other Changes in Unobligated Balance                                   | <u>(46,009)</u>            | <u>(48,773)</u>            |
| Unobligated Balance from Prior Year Budget Authority, Net              | 366,719                    | 379,340                    |
| Appropriations   | 7,332,495                  | 7,040,321                  |
| Spending Authority from Offsetting Collections                         | 101,721                    | 111,524                    |
| <b>Total Budgetary Resources (Note 13)</b>                             | <b>\$ <u>7,800,935</u></b> | <b>\$ <u>7,531,185</u></b> |
| <b>Status of Budgetary Resources</b>                                   |                            |                            |
| Obligations Incurred (Notes 12 & 13)                                   | \$ 7,407,202               | \$ 7,237,741               |
| Unobligated Balance, End of Year                                       |                            |                            |
| Apportioned (Note 2)   | 195,670                    | 145,033                    |
| Unapportioned (Notes 2 & 13)   | <u>198,063</u>             | <u>148,411</u>             |
| Total Unobligated Balance, End of Year                                 | 393,733                    | 293,444                    |
| <b>Total Status of Budgetary Resources</b>                             | <b>\$ <u>7,800,935</u></b> | <b>\$ <u>7,531,185</u></b> |
| <b>Change in Obligated Balance</b>                                     |                            |                            |
| Unpaid Obligations   |                            |                            |
| Unpaid Obligations - Brought Forward, October 1                        | \$ 11,471,269              | \$ 11,946,749              |
| Obligations Incurred   | 7,407,202                  | 7,237,741                  |
| Gross Outlays  | (7,214,548)                | (7,562,248)                |
| Recoveries of Prior Year Unpaid Obligations                            | <u>(119,284)</u>           | <u>(150,973)</u>           |
| Unpaid Obligations, End of Year  | 11,544,639                 | 11,471,269                 |
| Uncollected Payments   |                            |                            |
| Uncollected Payments from Federal Sources - Brought Forward, October 1 | \$ (146,502)               | \$ (136,496)               |
| Change in Uncollected Payments from Federal Sources                    | <u>23,567</u>              | <u>(10,006)</u>            |
| Uncollected Payments from Federal Sources, End of Year                 | (122,935)                  | (146,502)                  |
| Memorandum (non-add) Entries   |                            |                            |
| Obligated Balance, Start of Year                                       | \$ 11,324,767              | \$ 11,810,253              |
| Obligated Balance, End of Year (Note 2)                                | \$ 11,421,704              | \$ 11,324,767              |
| <b>Budget Authority and Outlays, Net</b>                               |                            |                            |
| Budget Authority, Gross  | \$ 7,434,216               | \$ 7,151,845               |
| Actual Offsetting Collections  | (125,288)                  | (101,518)                  |
| Change in Uncollected Customer Payments from Federal Sources           | <u>23,567</u>              | <u>(10,006)</u>            |
| Budget Authority, Net  | <b>\$ <u>7,332,495</u></b> | <b>\$ <u>7,040,321</u></b> |
| Gross Outlays  | \$ 7,214,548               | \$ 7,562,248               |
| Actual Offsetting Collections  | <u>(125,288)</u>           | <u>(101,518)</u>           |
| Net Outlays  | <b>7,089,260</b>           | <b>7,460,730</b>           |
| Distributed Offsetting Receipts (Note 13)                              | <u>(35,105)</u>            | <u>(43,584)</u>            |
| Net Agency Outlays   | <b>\$ <u>7,054,155</u></b> | <b>\$ <u>7,417,146</u></b> |

*The accompanying notes are an integral part of these statements.*

## **Notes to the Principal Financial Statements**

### **Note 1. Summary of Significant Accounting Policies**

#### ***A. Reporting Entity***

The National Science Foundation (NSF or “Foundation”) is an independent federal agency created by the National Science Foundation Act of 1950, as amended (42 U.S.C. 1861-75). Its mission is to promote and advance scientific progress in the United States. NSF initiates and supports scientific research and research fundamental to the engineering process and programs to strengthen the Nation’s science and engineering potential. NSF also supports education programs at all levels in all fields of science and engineering. NSF funds research and education in science and engineering by awarding grants and contracts to educational and research institutions in all parts of the United States. NSF, by law, cannot operate research facilities except in the polar regions. NSF enters into relationships through awards, to fund the research operations conducted by grantees.

NSF is led by a presidentially-appointed Director and the policy-making National Science Board (NSB). The NSB, currently composed of 25 members, represents a cross section of American leaders in science and engineering research and education, who are appointed by the President for six-year terms. The NSF Director is an *ex officio* member of the Board.

#### ***B. Basis of Presentation***

These financial statements have been prepared to report the financial position and results of operations of NSF as required by the Chief Financial Officers Act of 1990, the Government Management Reform Act of 1994, the Reports Consolidation Act of 2000, and the Office of Management and Budget (OMB) Circular No. A-136, *Financial Reporting Requirements*. While the statements have been prepared from the books and records of NSF in accordance with United States Generally Accepted Accounting Principles (U.S. GAAP) for federal entities and the formats prescribed by OMB, the statements are in addition to the financial reports used to monitor and control budgetary resources, which are prepared from the same books and records.

#### ***C. Basis of Accounting***

The accompanying financial statements have been prepared in accordance with U.S. GAAP for federal entities using the accrual method of accounting. Under the accrual method, revenues are recognized when earned and expenses are recognized when a liability is incurred, without regard to receipt or payment of cash. The accompanying financial statements also include budgetary accounting transactions that ensure compliance with legal constraints and controls over the use of federal funds.

#### ***D. Revenues and Other Financing Sources***

NSF traditionally receives the majority of its funding through appropriations contained in the Commerce, Justice, Science, and Related Agencies Appropriations Act. NSF receives annual, multi-year, and no-year appropriations that may be expended within statutory limits. NSF also receives funding via warrant from a receipt account for dedicated collections that is reported as H-1B Non-immigrant Petitioner Fees Account (H-1B) funds. Additional amounts are obtained from reimbursements for services provided to other federal agencies as well as from receipts to the NSF *Donations Account*. Also, NSF receives interest earned on overdue receivables and excess cash advances to grantees. The interest earned on overdue receivables and excess cash advances to grantees is returned to Treasury at the end of each fiscal year.

In FY 2014, The Science Appropriation Act, 2014 under Public Law 113-76 provided funding for each of NSF's appropriations. In addition, the Act provided an administrative provision allowing NSF to transfer up to five percent of current year funding between appropriations. Appropriations are recognized as a financing source at the time the related "funded" program or administrative expenditures are incurred. Appropriations are also recognized when used to purchase property, plant and equipment. "Unfunded" liabilities result from liabilities not covered by budgetary resources and will be paid when future appropriations are made available for these purposes. Donations are recognized as revenues when funds are received. Revenues from reimbursable agreements are recognized when the services are provided and the related expenditures are incurred. Reimbursable agreements are mainly for grant administrative services provided by NSF on behalf of other federal agencies.

Under the general authority of the Foundation, NSF is authorized to accept and use both U.S and foreign funds into the NSF *Donations Account*. In accordance with 42 U.S.C. 1862 Section 3 (a)(3), NSF has authority "to foster the interchange of scientific and engineering information among scientists and engineers in the United States and foreign countries" and in 42 U.S.C. 1870 Section 11 (f), NSF is authorized to receive and use funds donated by others. Donations may be received from foreign governments, private companies, academic institutions, non-profit foundations, and individuals. These funds must be donated without restriction other than that they be used in furtherance of one or more of the general purposes of the Foundation. Funds are made available for obligations as necessary to support NSF programs.

#### ***E. Fund Balance with Treasury and Cash and Other Monetary Assets***

Cash receipts and disbursements are processed by Treasury. *Fund Balance with Treasury* is composed primarily of appropriated funds that are available to pay current liabilities and finance authorized purchase commitments. *Cash and Other Monetary Assets* primarily include non-appropriated funding sources from donations and undeposited collections.

#### ***F. Accounts Receivable, Net***

*Accounts Receivable* consist of amounts due from governmental agencies, private organizations, and individuals. Additionally, NSF has the right to conduct audits on awardees to verify billed amounts. These audits may result in monies owed back to NSF. Upon resolution of the amount owed by the awardee to NSF, a receivable is recorded.

NSF establishes an allowance for loss on accounts receivable from non-federal sources that are deemed uncollectible but regards amounts due from other federal agencies as fully collectible. NSF analyzes each account independently to assess collectability and the need for an offsetting allowance or write-off. NSF writes off delinquent debt from non-federal sources that is more than two years old.

#### ***G. Advances***

*Advances* consist of advances to contractors and federal agencies. Advances to contractors are payments made in advance of incurring expenditures. Advances to federal agencies are issued when agencies are operating under working capital funds or are unable to incur costs on a reimbursable basis. Advances are reduced when documentation supporting expenditures is received and recorded. Additionally, some NSF grantees receive advanced funds prior to incurring expenses. Payments are only made within the amount of the recorded grant obligation and are intended to cover immediate cash needs. Grant advances are presented net of grant liabilities on NSF's Balance Sheet.

### ***H. General Property, Plant and Equipment***

NSF capitalizes PP&E with costs exceeding \$25.0 thousand and useful lives of two or more years; items not meeting these criteria are recorded as operating expenses. NSF currently reports capitalized PP&E at original acquisition cost; assets acquired from the General Services Administration (GSA) excess property schedules are recorded at the value assigned by the donating agency; assets transferred in from other agencies are valued at the cost recorded by the transferring entity for the asset net of accumulated depreciation or amortization.

The PP&E balance consists of Equipment, Software, Software in Development, Aircraft and Satellites, Buildings and Structures, Leasehold Improvements, and Construction in Progress. These balances are comprised of PP&E maintained “in-house” by NSF to support operations and PP&E under the U.S. Antarctic Program (USAP). The majority of USAP property is currently under the custodial responsibility of the prime NSF contractor for the program.

Costs incurred to construct buildings and structures are accumulated and tracked as construction in progress. At 75 percent completion of construction, an on-site Conditional Occupancy inspection is performed to inspect for compliance to the approved plans, design, specifications, and changes. Items that pertain to the safety and health of any future occupants of the facility must be corrected before a Conditional Occupancy is granted and the facility occupied. When Conditional Occupancy is granted, the completed project is transferred from construction in progress to real property or capital equipment and depreciated over the respective useful life of the asset.

Depreciation expense is calculated using the straight-line half-year convention. The economic useful life classifications for capitalized assets are as follows:

#### **Equipment**

|                |  |
|----------------|--|
| 5 years        | Computers and peripheral equipment, fuel storage tanks, laboratory equipment, and vehicles |
| 7 years        | Communications equipment, office furniture and equipment, pumps and compressors            |
| 10 or 15 years | Generators, Department of Defense equipment  |
| 20 years       | Movable buildings (e.g. trailers)  |

#### **Aircraft and Satellites**

|         |  |
|---------|--|
| 7 years | Aircraft, aircraft conversions, and satellites |
|---------|--|

#### **Buildings and Structures**

|            |  |
|------------|--|
| 31.5 years | Buildings and structures placed in service prior to 1994 |
| 39 years   | Buildings and structures placed in service after 1993    |

#### **Leases and Leasehold Improvements**

The NSF Headquarter buildings are leased through GSA under an occupancy agreement. The cancellation clause within the agreement allows NSF to terminate use with a 120-day notice. NSF is billed by GSA for the leased space as rent based upon estimated lease payments made by GSA plus an administrative fee. Therefore, the cost of the Headquarter buildings is not capitalized by NSF. All NSF leases are cancellable and/or in effect for a period of no more than one year. The cost of leasehold improvements performed by GSA is financed with NSF appropriated funds. Amortization is calculated using the straight-line half-year convention upon transfer from

construction in progress. In the future, NSF will be moving to a new Headquarter building in Alexandria, VA. Information on the expected new lease can be found on NSF's website: [http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=128219](http://www.nsf.gov/news/news_summ.jsp?cntn_id=128219)

### **Internal Use Software**

NSF controls, values, and reports purchased or developed software as tangible property assets, in accordance with the Statement of Federal Financial Accounting Standards (SFFAS) No. 10, *Accounting for Internal Use Software*. NSF identifies software investments as capital property for items that, in the aggregate, cost \$500.0 thousand or more to purchase, develop, enhance, or modify a new or existing NSF system, or configure a government-wide system for NSF needs. Software projects that are not completed at year end and are expected to exceed the capitalization threshold are recorded as software in development. All internal use software meeting the capitalization threshold is amortized over a five-year period using the straight-line half-year convention.

*Assets Owned by NSF in the Custody of Other Entities:* NSF awards grants, cooperative agreements, and contracts to various organizations, including colleges and universities, non-profit organizations, state and local governments, Federally Funded Research and Development Centers (FFRDCs), and private entities. The funds provided may be used in certain cases to purchase or construct PP&E to be used for operations or research on projects or programs sponsored by NSF. In these instances, NSF funds the acquisition of property, but transfers control of the assets to these entities. NSF's authorizing legislation specifically prohibits the Foundation from operating such property directly.

In practice, NSF's ownership interest in such PP&E is similar to a reversionary interest. To address the accounting and reporting of these assets, specific guidance was sought by NSF and provided by the Federal Accounting Standards Advisory Board (FASAB). This guidance stipulates that NSF should: (i) disclose the value of such PP&E held by others in its financial statements based on information contained in the audited financial statements of these entities (if available); and (ii) report information on costs incurred to acquire the research facilities, equipment, and platforms in the Research and Human Capital Activity costs as required by the SFFAS No. 8, *Supplementary Stewardship Reporting*. Very few entities disclose information on NSF titled property in their audited financial statements. Therefore, NSF has elected to disclose only the number of entities in possession of NSF owned property. Entities that separately present the book value of NSF titled property in their audited financial statements and all FFRDCs are listed in Note 4, *General Property, Plant and Equipment in the Custody of Other Entities*, along with the book value of the property held.

### ***I. Advances From Others***

*Advances From Others* consist of amounts obligated and advanced by other federal entities to NSF for grant administration and other services to be furnished under reimbursable agreements.

### ***J. Accounts Payable***

*Accounts Payable* consist of liabilities to federal agencies, commercial vendors, contractors, and disbursements in transit. *Accounts Payable* to federal agencies, commercial vendors, and contractors are expenses for goods and services received but not yet paid for by NSF at the end of the fiscal year. At year end, NSF accrues for the amount of estimated unpaid expenditures to commercial vendors for which invoices have not been received, but goods and services have been delivered and rendered. *Accounts Payable* also consist of disbursements in transit recorded by NSF but not paid by Treasury.



***K. Accrued Liabilities –Grants***

Effective June 30, 2013, NSF adopted the full use of a new grantee cash request and expenditure reporting process, Award Cash Management Service (ACM\$). The implementation of ACM\$ required a modification of NSF's grant accrual methodology. NSF is actively collecting information from its grantees and ACM\$ as a new grant accrual methodology is developed for future years. Although a new methodology has not been finalized as of September 30, 2014, NSF's interim approach uses statistical sampling and grantee confirmation survey results to estimate grant expenses incurred but not yet reported. Additional details are included in Note 7, *Accrued Liabilities - Grants*.

***L. Accrued Liabilities –Contracts, Payroll, and Other***

*Accrued Liabilities – Contracts, Payroll, and Other* consist of contract accruals, accrued payroll, and undeposited collections. The total contract liabilities for the year are determined based on an estimate of prior quarter expenditures incurred by contractors that are funded on an advance basis. Expenditures are estimated for each contractor by computing an average of the previous four quarters of actual expenditures reported. The accrual increases expenditures and decreases advances for the account. If the estimated accrual amount exceeds total advances, a liability is accrued for the excess. NSF's payroll services are provided by the Department of the Interior's Interior Business Center. Accrued payroll relates to services rendered by NSF employees, for which they have not yet been paid. At year end, NSF accrues the amount of wages earned, but not yet paid. Undeposited collections are funds received by NSF, but not remitted to Treasury prior to September 30.

***M. Employee Benefits***

A liability is recorded for estimated and actual future payments to be made for workers' compensation pursuant to the Federal Employees' Compensation Act (FECA). The liability consists of the net present value of estimated future payments calculated by the U.S. Department of Labor (DOL) and the actual unreimbursed cost paid by DOL for compensation paid to recipients under FECA. The actual costs incurred are reflected as a liability because NSF will reimburse DOL two years after the actual payment of expenses. Future NSF Agency Operations and Award Management (AOAM) appropriations will be used for DOL's estimated reimbursement.

Annual leave is accrued as it is earned, and the accrual is reduced as leave is taken. Each year, the balance in the accrued annual leave account is adjusted to reflect changes. To the extent current and prior-year appropriations are not available to fund annual leave earned but not taken, funding will be obtained from future AOAM appropriations. Sick leave and other types of non-vested leave are expensed as taken.

***N. Net Position***

Net position is the residual difference between assets and liabilities and is composed of unexpended appropriations and cumulative results of operations. *Unexpended Appropriations* represent the amount of undelivered orders and unobligated balances of budget authority. Unobligated balances are the amount of appropriations or other authority remaining after deducting the cumulative obligations from the amount available for obligation. The *Cumulative Results of Operations* represent the net results of NSF's operations since the Foundation's inception.

***O. Retirement Plan***

In FY 2014, approximately 10 percent of NSF employees participated in the Civil Service Retirement System (CSRS), to which NSF matches contributions equal to 7 percent of pay. The majority of NSF employees are covered by the Federal Employees Retirement System (FERS) and Social Security. A primary feature of FERS is a thrift savings plan to which NSF automatically contributes 1 percent of pay and matches employee contributions up to an additional 4 percent of pay. NSF also contributes the employer's matching share for Social Security for FERS participants.

Although NSF funds a portion of the benefits under FERS and CSRS relating to its employees and withholds the necessary payroll deductions, the Foundation has no liability for future payments to employees under these plans, nor does NSF report CSRS, FERS, Social Security assets, or accumulated plan benefits on its financial statements. Reporting such amounts is the responsibility of the Office of Personnel Management (OPM) and the Federal Retirement Thrift Investment Board.

SFFAS No. 5, *Accounting for Liabilities of the Federal Government*, requires employing agencies to recognize the cost of pensions and other retirement benefits during their employees' active years of service. OPM actuaries determine pension cost factors by calculating the value of pension benefits expected to be paid in the future, and provide these factors to the agency for current period expense reporting. Information is also provided by OPM regarding the full cost of health and life insurance benefits on the OPM Benefit Administration Website: <http://www.opm.gov/retirement-services/publications-forms/benefits-administration-letters/2014/14-304.pdf>

***P. Contingencies and Possible Future Costs***

*Contingencies - Claims and Lawsuits:* NSF is a party to various legal actions and claims brought against it. In the opinion of NSF management and legal counsel, the ultimate resolution of the actions and claims will not materially affect the financial position or operations of the Foundation. NSF recognizes the contingency in the financial statements when claims are expected to result in a material loss (and the payment amounts can be reasonably estimated), whether from NSF's appropriations or the Judgment Fund, administered by the Department of Justice under Section 1304 of Title 31 of the United States Code.

Claims and lawsuits can also be made and filed against awardees of the Foundation by third parties. NSF is not a party to these actions and NSF believes there is no possibility that NSF will be legally required to satisfy such claims. Judgments or settlements of the claims against awardees that impose financial obligation on them may be claimed as costs under the applicable contract, grant, or cooperative agreement and thus may affect the allocation of program funds in future fiscal years. In the event that the claim becomes probable and amounts can be reasonably estimated, the claim will be recognized.

*Contingencies – Unasserted Claims:* For claims and lawsuits that have not been made and filed against the Foundation, NSF management and legal counsel determine, in their opinion, whether resolution of the actions and claims they are aware of will materially affect the Foundation's financial position or operations. NSF recognizes a contingency in the financial statements when unasserted claims are probable of assertion, and if asserted, would be probable of an unfavorable outcome and expected to result in a measurable loss, whether from NSF's appropriations or the Judgment Fund. NSF discloses unasserted claims if materiality or measurability of a potential loss cannot be determined or the loss is more likely than not to occur.

*Termination Claims:* NSF engages organizations, including FFRDCs, in cooperative agreements and contracts to manage, operate, and maintain research facilities for the benefit of the scientific community.

As part of these agreements and contracts, NSF funds on a pay-as-you-go basis certain employee benefit costs (accrued vacation and other employee related liabilities, severance pay and medical insurance), long term leases, and vessel usage and drilling. In some instances, an award decision is made to continue operation of a facility with a different entity performing operation and management duties. In such an occurrence, NSF does not classify the facility as terminated. Claims submitted by the previous managing entity for expenditures not covered by the indirect cost rate included in the initial award are subject to audit and typically paid with existing program funds.

Agreements with FFRDCs include a clause that commits NSF to seek appropriations for termination expenses, if necessary, in the event a facility is terminated. NSF considers termination of these facilities only remotely possible. Should a facility be terminated, NSF is obligated to pay termination expenses for FFRDCs in excess of the limitation of funds set forth in the agreements, including any Post Retirement Benefit liabilities, only if funds are appropriated for this specific purpose. Nothing in these agreements can be construed as implying that Congress will appropriate funds to meet the terms of any claims. Termination costs that may be payable to an FFRDC operator cannot be estimated until such time as the facility is terminated.

*Environmental Liabilities:* NSF manages the U.S. Antarctic Program (USAP). The Antarctic Conservation Act and its implementing regulations identify the requirements for environmental clean-up in Antarctica. NSF continually monitors the U.S. Antarctic Program in regards to environmental issues. NSF establishes its environmental liability estimates in accordance with the requirements of the SFFAS No. 5, *Accounting for Liabilities of the Federal Government*, and as amended by SFFAS No. 12, *Recognition of Contingent Liabilities Arising from Litigation*, and the Federal Financial Accounting and Auditing Technical Release No. 2, *Determining Probable and Reasonably Estimable for Environmental Liabilities in the Federal Government*

While NSF is not legally liable for environmental clean-up costs in the Antarctic, there are occasions when the NSF Division of Polar Programs (PLR) chooses to accept responsibility and commit funds toward clean-up efforts of various sites as resources permit. Decisions to commit funds are in no way driven by concerns of probable legal liability for failure to engage in such efforts, but rather a commitment to environmental stewardship of Antarctic natural resources. Environmental clean-up projects started and completed during the year are reflected in NSF's financial statements as expenses for the current fiscal year. An estimated cost would be accrued for approved projects that are anticipated to be performed after the fiscal year end or will take more than one fiscal year to complete.

Separate from environmental clean-up costs related to the Antarctic Conservation Act, NSF discloses NSF-owned buildings in the Antarctic that have been identified as having, or expected to have, friable and non-friable asbestos containing material. NSF's estimated cost for asbestos related clean-up is shown on the Balance Sheet as a liability. Additional detail on the estimate methodology is included in Note 6, *Environmental and Disposal Liability*.

### *Q. Use of Estimates*

Management has made certain estimates and assumptions when reporting assets, liabilities, revenues, and expenses, and also in the note disclosures. Estimates underlying the accompanying financial statements include accounting for grants, contracts, accounts payable, payroll, and property, plant and equipment. Actual results may differ from these estimates, and the difference will be adjusted for and included in the financial statements of the following fiscal year.

**Notes to the Principal Financial Statements**  
**September 30, 2014 and 2013**

**Note 2. Fund Balance With Treasury**

*Fund Balance with Treasury* (FBWT) consisted of the following components as of September 30, 2014 and 2013:

| (Amounts in Thousands)               | 2014                  |                  |  |                      |
|--------------------------------------|-----------------------|------------------|--|----------------------|
|                                      | Appropriated<br>Funds | Donated<br>Funds | Funds from<br>Dedicated<br>Collections | Total                |
| Obligated                            | \$ 11,093,691         | \$ 25,070        | \$ 302,943                             | \$ 11,421,704        |
| Unobligated Available                | 73,827                | 27,632           | 94,211                                 | 195,670              |
| Unobligated Unavailable              | 183,707               | 217              | 14,139                                 | 198,063              |
| Less: Cash and Other Monetary Assets | (674)                 | (34,888)         | -                                      | (35,562)             |
| Add: Undeposited Collections         | 674                   | -                | -                                      | 674                  |
| <b>Total FBWT</b>                    | <b>\$ 11,351,225</b>  | <b>\$ 18,031</b> | <b>\$ 411,293</b>                      | <b>\$ 11,780,549</b> |

| (Amounts in Thousands)               | 2013                  |                  |  |                      |
|--------------------------------------|-----------------------|------------------|--|----------------------|
|                                      | Appropriated<br>Funds | Donated<br>Funds | Funds from<br>Dedicated<br>Collections | Total                |
| Obligated                            | \$ 11,025,648         | \$ 33,624        | \$ 265,495                             | \$ 11,324,767        |
| Unobligated Available                | 10,051                | 32,855           | 102,127                                | 145,033              |
| Unobligated Unavailable              | 146,080               | 12               | 2,319                                  | 148,411              |
| Less: Cash and Other Monetary Assets | -                     | (31,284)         | -                                      | (31,284)             |
| Add: Undeposited Collections         | -                     | -                | -                                      | -                    |
| <b>Total FBWT</b>                    | <b>\$ 11,181,779</b>  | <b>\$ 35,207</b> | <b>\$ 369,941</b>                      | <b>\$ 11,586,927</b> |

The NSF *Donations Account* includes amounts donated to NSF from all sources. Funds in the NSF *Donations Account* may be used to further one or more of the general purposes of the Foundation. The donated funds are reported as *FBWT* or as *Cash and Other Monetary Assets*. Donations reported as *Cash and Other Monetary Assets* represent cash held outside of Treasury at commercial banks in interest bearing accounts. These funds are collateralized up to \$33.8 million by the bank, through the Federal Reserve Bank of St. Louis, in accordance with Treasury Financial Manual Volume 1, Chapter 6-9000. *Unobligated Unavailable* balances include recoveries of prior year obligations and other unobligated expired funds that are unavailable for new obligations.

In FY 1999, in accordance with P.L. 105-277, a special fund named H-1B was established in the general fund of the U.S. Treasury. These funds are considered Funds from Dedicated Collections and are not included in Appropriated Funds. The funds represent fees collected for each petition for non-immigrant status. Under the law, NSF was prescribed a percentage of these fees for specific programs.

**Note 3. General Property, Plant and Equipment, Net**

The components of *General Property, Plant, and Equipment* as of September 30, 2014 and 2013 were:

| (Amounts in Thousands)   | 2014              |                     |                   |
|--------------------------|-------------------|---------------------|-------------------|
|                          | Acquisition       | Accumulated         | Net Book Value    |
|                          | Cost              | Depreciation        |                   |
| Equipment                | \$ 146,602        | \$ (129,402)        | \$ 17,200         |
| Aircraft and Satellites  | 138,487           | (138,487)           | -                 |
| Buildings and Structures | 305,768           | (122,467)           | 183,301           |
| Leasehold Improvements   | 10,981            | (10,981)            | -                 |
| Construction in Progress | 13,755            | -                   | 13,755            |
| Internal Use Software    | 48,274            | (20,273)            | 28,001            |
| Software in Development  | 31,575            | -                   | 31,575            |
| <b>Total PP&amp;E</b>    | <b>\$ 695,442</b> | <b>\$ (421,610)</b> | <b>\$ 273,832</b> |

| (Amounts in Thousands)   | 2013              |                     |                   |
|--------------------------|-------------------|---------------------|-------------------|
|                          | Acquisition       | Accumulated         | Net Book Value    |
|                          | Cost              | Depreciation        |                   |
| Equipment                | \$ 145,902        | \$ (124,214)        | \$ 21,688         |
| Aircraft and Satellites  | 138,487           | (138,487)           | -                 |
| Buildings and Structures | 305,855           | (114,746)           | 191,109           |
| Leasehold Improvements   | 10,981            | (10,981)            | -                 |
| Construction in Progress | 12,712            | -                   | 12,712            |
| Internal Use Software    | 48,274            | (15,842)            | 32,432            |
| Software in Development  | 10,548            | -                   | 10,548            |
| <b>Total PP&amp;E</b>    | <b>\$ 672,759</b> | <b>\$ (404,270)</b> | <b>\$ 268,489</b> |

At September 30, 2014, NSF's new core financial system, iTRAK, was in development and subsequently placed into service in October 2014.

**Note 4. General Property, Plant, and Equipment in the Custody of Other Entities**

NSF received a ruling from FASAB on accounting for PP&E owned by NSF but in the custody of and used by others (see Note 1H. *General Property, Plant, and Equipment (PP&E)*). The FASAB guidance requires PP&E in the custody of others be excluded from NSF PP&E as defined in the SFFAS No. 6, *Accounting for Property, Plant and Equipment*. NSF is required to disclose the dollar amount of NSF PP&E held by others in the footnotes based on information contained in the most recently issued audited financial statements of the organization holding the assets.

As of September 30, 2014, there were 36 colleges or universities, and 39 commercial entities that held property titled to NSF. With the exception of the FFRDCs listed below, none of the colleges, universities or commercial entities reported NSF titled property separately.

The amount of PP&E owned by NSF but in the custody of an FFRDC is identified in the table below. In some cases FFRDCs operate on a fiscal year end basis other than September 30th. If NSF PP&E is not separately stated on the FFRDC's audited financial statements, the FFRDC is not audited, or the FFRDC's disclosed PP&E balances are not audited, the related amounts are annotated as Not Available (N/A) in the table.

**Notes to the Principal Financial Statements**  
**September 30, 2014 and 2013**

(Amounts in Thousands)

| <i>Federally Funded Research and Development Centers</i>           | Amount    | Fiscal Year<br>Ending |
|--|-----------|-----------------------|
| University Corporation for Atmospheric Research - UCAR             | \$206,583 | 9/30                  |
| Association of Universities for Research in Astronomy, Inc. - AURA | N/A       | 9/30                  |
| National Radio Astronomy Observatory - AUI                         | \$555,526 | 9/30                  |

**Note 5. Leases**

NSF leases its Headquarter building under an operating lease with GSA. The following is a schedule of future minimum lease payments for the Headquarter buildings and office space in Denver, Colorado. The current leases are active through FY 2021.

(Amounts in Thousands)

| Fiscal Year                  | Operating Lease<br>Amount |
|------------------------------|---------------------------|
| 2015                         | \$ 30,206                 |
| 2016                         | 30,446                    |
| 2017                         | 30,631                    |
| 2018                         | 7,681                     |
| 2019 and After               | 212                       |
| Total Minimum Lease Payments | \$ 99,176                 |

In addition to the Headquarter buildings, NSF occupies common spaces with other federal agencies overseas through the State Department's International Cooperative Administrative Support Services (ICASS) system. NSF uses ICASS in Beijing, Paris, and Tokyo for residential and non-residential space. ICASS is a voluntary cost distribution system and the agreement to receive ICASS services is through an annual Memorandum of Understanding (MOU) between the NSF and the State Department. Additionally, NSF occupies residential space in Tokyo; the lease to occupy the space is a cancellable and/or for a period not more than a year.

**Note 6. Environmental and Disposal Liability**

Pursuant to Federal Accounting Standards Advisory Board (FASAB) Technical Bulletin 2006-1, *Recognition and Measurement of Asbestos-Related Cleanup Costs*, federal entities are required to recognize a liability for federal property asbestos cleanup costs. Some NSF owned buildings and structures used to support the USAP have been identified as having, or expected to have, friable and non-friable asbestos containing material (ACM). Upon the effective date in FY 2013, NSF recognized the entire asbestos liability of \$18.2 million. The balance was recorded as a prior period adjustment due to a change in accounting principle since the majority of the real property has been in service for a significant portion of their estimated useful life. NSF based the asbestos liability on information supplied by the Antarctic Support Contractor (ASC). The ASC supplied information was based on asbestos surveys conducted in 2006 and included updates for all abatements and encapsulations performed since that time. The liability incorporates the following estimates:

- Waste handling in Antarctica to include miscellaneous supplies
- Transportation and disposal costs once the waste arrives in the United States
- Subcontract pricing information for asbestos abatement based on FY 2013 rates

As required by SFFAS No. 6, *Accounting for Property, Plant and Equipment*, NSF works with the current ASC to determine the need for asbestos liability adjustments based on actual asbestos costs incurred on an annual basis. Actual asbestos remediation costs are submitted quarterly by the ASC and the asbestos liability is reduced by the reported amount. No asbestos remediation costs were incurred as of September 30, 2014 and the balance remains \$18.2 million.

### **Note 7. Accrued Liabilities – Grants**

Effective June 30, 2013, NSF fully implemented a new grantee cash request and expenditure reporting system, ACM\$. The new system enables all grantee institutions to request funds at the award level. Accordingly, NSF began to accumulate grantee data under ACM\$ to develop a new grant accrual methodology for future use. However, through September 30, 2013, consistent historical grantee spending information under ACM\$ was not yet available for NSF to reasonably estimate grantee spending patterns and grantee costs incurred but not yet reported/drawn at September 30, 2013.

Based on the average daily ACM\$ draws for only the last quarter of FY 2013, NSF recorded a “cut-off” grant accrual of \$91.1 million at September 30, 2013. The methodology was developed due to Treasury cut-off dates, that resulted in the inability of grantees to drawdown funds in ACM\$ three business days before the end of the fiscal year.

In FY 2014, pursuant to guidelines set forth in Technical Release (TR 12) *Accrual Estimates for Grant Programs*, NSF performed a statistical validation of grantee expenses incurred, but not yet reported/drawn as of September 30, 2013. The validation results were significantly higher than the \$91.1 million recorded in the FY 2013 financial statements, and NSF determined that the increase was due to a combination of change in estimate and correction of error in FY 2013. The correction of error portion of the increase was not material to the FY 2013 financial statements and, accordingly, the FY 2013 financial statements were not restated.

NSF developed an alternate grant accrual methodology for FY 2014. Accordingly, NSF applied a statistical approach to determine the amount of FY 2014 grantee expenses incurred but not yet reported or drawn at the end of the year. The approach involved sending questionnaires to a statistically based sample of grantee institutions requesting their cash on hand balance as of September 30, 2014. This FY 2014 grant accrual approach resulted in a grant accrued liability recorded in NSF’s financial statements of \$250.3 million at September 30, 2014. Such amount is net of advances drawn by grantees for estimated expenditure requirements in October 2014 (FY 2015).

### **Note 8. Funds from Dedicated Collections**

In FY 1999, Title IV of the American Competitiveness and Workforce Improvement Act of 1998 (P.L. 105-277) established an H-1B Nonimmigrant Petitioner account in the General Fund of the U.S. Treasury. Funding is established from fees collected for alien, nonimmigrant status petitions. This law requires that a prescribed percentage of the funds in the account be made available to NSF for the following activities:

- Computer Science, Engineering, and Mathematics Scholarship (CSEMS)
- Grants for Mathematics, Engineering, or Science Enrichment Courses
- Systemic Reform Activities

The H-1B Nonimmigrant Petitioner fees are available to the Director of NSF until expended. The funds may be used for scholarships to low income students, or to carry out a direct or matching grant program to support private and/or public partnerships in K-12 education. The H-1B Fund is set up as a permanent,

**Notes to the Principal Financial Statements**  
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indefinite appropriation by NSF. These funds are included in the President's budget. The funds from dedicated collections are accounted for in a separate Treasury Account Fund Symbol (TAFS), and the budgetary resources are recorded as *Appropriated Funds from Dedicated Collections Transferred In / Out*. Funds from Dedicated Collections are reported in accordance with SFFAS No. 43, *Funds from Dedicated Collections: Amending Statement of Federal Financial Accounting Standards 27, Identifying and Reporting Earmarked Funds*. For the years ended September 30, 2014 and September 30, 2013, NSF was subject to H-1B sequestration rescissions in the amount of \$9.5 million and \$5.1 million, respectively.

| (Amounts in Thousands)                                 | 2014              | 2013              |
|--|-------------------|-------------------|
| <b>Balance Sheet as of September 30, 2014 and 2013</b> |                   |                   |
| Fund Balance With Treasury                             | \$ 411,293        | \$ 369,941        |
| Total Assets   | <u>411,293</u>    | <u>369,941</u>    |
| Other Liabilities                                      | <u>7,094</u>      | <u>1,261</u>      |
| Total Liabilities                                      | <u>7,094</u>      | <u>1,261</u>      |
| Cumulative Results of Operations                       | <u>404,199</u>    | <u>368,680</u>    |
| Total Liabilities and Net Position                     | <u>\$ 411,293</u> | <u>\$ 369,941</u> |

**Statement of Net Cost for the Years Ended September 30, 2014 and 2013**

|                        |                  |                  |
|------------------------|------------------|------------------|
| Program Costs          | \$ 92,534        | \$ 91,365        |
| Net Cost of Operations | <u>\$ 92,534</u> | <u>\$ 91,365</u> |

**Statement of Changes in Net Position For the Years Ended September 30, 2014 and 2013**

|  |                   |                   |
|--|-------------------|-------------------|
| Net Position Beginning of Period                       | \$ 368,680        | \$ 344,204        |
| Appropriated Dedicated Collection Transferred In / Out | 128,053           | 115,841           |
| Net Cost of Operation                                  | <u>(92,534)</u>   | <u>(91,365)</u>   |
| Change in Net Position                                 | <u>35,519</u>     | <u>24,476</u>     |
| Net Position End of Period                             | <u>\$ 404,199</u> | <u>\$ 368,680</u> |

**Note 9. Statement of Net Cost**

NSF has a singular program for supporting research and education awards. The net costs for this program are presented for the three primary appropriations that fund NSF's programmatic activities (Research and Related Activities (R&RA), Education and Human Resources (EHR), and Major Research Equipment and Facilities Construction (MREFC)). Donations and Funds from Dedicated Collections are separately presented in the Statement of Net Cost and in the tables below.

In pursuit of its mission, NSF incurs costs related to the Foundation's strategic plan for FY 2014-2018: *Investing in Science, Engineering, and Education for the Nation's Future*. The strategic goals outlined in this plan are: "Transform the Frontiers of Science and Engineering", "Stimulate Innovation and Address Societal Needs through Research and Education", and "Excel as a Federal Science Agency". "Transform the Frontiers of Science and Engineering" emphasizes the seamless integration of research and education as well as the close coupling of research infrastructure and discovery. "Stimulate Innovation and Address Societal Needs through Research and Education" points to the tight linkage between NSF programs and



**Notes to the Principal Financial Statements**  
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societal needs, and highlights the role that new knowledge and creativity play in economic prosperity and society's general welfare. "Excel as a Federal Science Agency" emphasizes the importance to NSF of attaining excellence and inclusion in all operational aspects.

Stewardship costs directly reflect the third strategic goal, "Excel as a Federal Science Agency", and are prorated among the Net Cost programs. Stewardship costs include expenditures incurred from the AOAM, NSB, and Office of Inspector General (OIG) appropriations. These appropriations support salaries and benefits of persons employed at NSF; general operating expenses, including support of NSF's information systems technology; staff training, audit and OIG activities; and OPM and DOL benefits costs paid on behalf of NSF.

At September 30, 2014 approximately 96 percent of NSF's expenses amounting to \$7.1 billion was directly related to the "Transform the Frontiers of Science and Engineering" and "Stimulate Innovation and Address Societal Needs through Research and Education" strategic outcome goals. At September 30, 2013 approximately 95 percent of NSF's expenses amounting to \$6.9 billion was directly related to the "Transform the Frontiers of Science and Engineering" and "Stimulate Innovation and Address Societal Needs through Research and Education" strategic outcome goals. At September 30, 2014 and 2013, costs related to the stewardship activities totaled \$309.8 million and \$327.4 million, respectively.

In accordance with OMB Circular No. A-136, costs incurred for services provided by other federal entities are reported in the full costs of NSF programs and are separately identified in this note as "Federal." All earned revenues are offsetting collections provided through reimbursable agreements with other federal entities and are retained by NSF. Earned revenues are recognized when the related program or administrative expenses are incurred and are deducted from the full cost of the programs to arrive at the net cost of operating NSF's programs. NSF applies a cost recovery fee on other federal entities consistent with applicable legislation and Government Accountability Office decisions. NSF recovers the costs incurred in the management, administration, and oversight of activities authorized and/or funded by interagency agreements where NSF is the performing agency.

***Intragovernmental and Public Costs and Earned Revenue by Program***

| (Amounts in Thousands)  | 2014              |                     |                     |
|---|-------------------|---------------------|---------------------|
|   | Federal           | Public              | Total               |
| <b>Research and Related Activities</b>                          |                   |                     |                     |
| Gross Costs   | \$ 245,202        | \$ 5,805,751        | \$ 6,050,953        |
| Less: Earned Revenue  | (100,782)         | -                   | (100,782)           |
| <b>Net Research and Related Activities</b>                      | <u>144,420</u>    | <u>5,805,751</u>    | <u>5,950,171</u>    |
| <b>Education and Human Resources</b>                            |                   |                     |                     |
| Gross Costs   | \$ 6,824          | \$ 870,490          | \$ 877,314          |
| Less: Earned Revenue  | (3,616)           | -                   | (3,616)             |
| <b>Net Education and Human Resources</b>                        | <u>3,208</u>      | <u>870,490</u>      | <u>873,698</u>      |
| <b>Major Research Equipment and Facilities Construction</b>     |                   |                     |                     |
| Gross Costs   | \$ 45             | \$ 292,616          | \$ 292,661          |
| Less: Earned Revenue  | -                 | -                   | -                   |
| <b>Net Major Research Equipment and Facilities Construction</b> | <u>45</u>         | <u>292,616</u>      | <u>292,661</u>      |
| <b>Donations and Dedicated Collections</b>                      |                   |                     |                     |
| Gross Costs   | \$ 525            | \$ 139,596          | \$ 140,121          |
| Less: Earned Revenue  | -                 | -                   | -                   |
| <b>Net Donations and Dedicated Collections</b>                  | <u>525</u>        | <u>139,596</u>      | <u>140,121</u>      |
| <b>Net Cost of Operations</b>                                   | <u>\$ 148,198</u> | <u>\$ 7,108,453</u> | <u>\$ 7,256,651</u> |

**Notes to the Principal Financial Statements**  
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| (Amounts in Thousands)                                   | 2013              |                     |                     |
|--|-------------------|---------------------|---------------------|
|  | Federal           | Public              | Total               |
| Research and Related Activities                          |                   |                     |                     |
| Gross Costs  | \$ 204,129        | \$ 5,830,999        | \$ 6,035,128        |
| Less: Earned Revenue                                     | (101,802)         | -                   | (101,802)           |
| Net Research and Related Activities                      | <u>102,327</u>    | <u>5,830,999</u>    | <u>5,933,326</u>    |
| Education and Human Resources                            |                   |                     |                     |
| Gross Costs  | \$ 4,636          | \$ 791,823          | \$ 796,459          |
| Less: Earned Revenue                                     | (5,406)           | -                   | (5,406)             |
| Net Education and Human Resources                        | <u>(770)</u>      | <u>791,823</u>      | <u>791,053</u>      |
| Major Research Equipment and Facilities Construction     |                   |                     |                     |
| Gross Costs  | \$ 19             | \$ 225,384          | \$ 225,403          |
| Less: Earned Revenue                                     | -                 | -                   | -                   |
| Net Major Research Equipment and Facilities Construction | <u>19</u>         | <u>225,384</u>      | <u>225,403</u>      |
| Donations and Dedicated Collections                      |                   |                     |                     |
| Gross Costs  | \$ 22             | \$ 167,267          | \$ 167,289          |
| Less: Earned Revenue                                     | -                 | -                   | -                   |
| Net Donations and Dedicated Collections                  | <u>22</u>         | <u>167,267</u>      | <u>167,289</u>      |
| Net Cost of Operations                                   | <u>\$ 101,598</u> | <u>\$ 7,015,473</u> | <u>\$ 7,117,071</u> |

**Note 10. Rescissions and Cancelled Authority Adjustments**

The components of Rescissions and Cancelled Authority Adjustments as of September 30, 2014 and September 30, 2013 were:

| (Amount in Thousands)                                 | 2014               | 2013                |
|---|--------------------|---------------------|
| Rescissions   | \$ -               | \$ (508,986)        |
| Cancelled Authority Adjustments                       | (46,009)           | (49,076)            |
| Total Rescissions and Cancelled Authority Adjustments | <u>\$ (46,009)</u> | <u>\$ (558,062)</u> |

In FY 2014, NSF sequestration rescissions were limited to H-1B as described in Note 8. These rescissions are included as *Appropriated Funds from Dedicated Collections Transferred In / Out* and are not included on the *Rescissions and Cancelled Authority Adjustments* line of the Statement of Changes in Net Position. In accordance with Public Law 113-6, NSF was subject to FY 2013 across-the-board and sequestration rescissions. These rescissions required NSF to reduce FY 2013 funding levels by 1.877% under section 3001 and 0.2% under section 3004.

**Note 11. Permanent Indefinite Appropriations**

NSF maintains permanent indefinite appropriations for R&RA, MREFC, and EHR. The R&RA appropriation is used for polar research and operations support, and for reimbursement to other federal agencies for operational and science support and logistical and other related activities for the USAP. In FYs 2014 and 2013 the permanent indefinite appropriations for R&RA were \$435.9 million and \$427.2 million, respectively, and are reported as current year transfers from the annual R&RA appropriation. The MREFC appropriation supports the procurement and construction of unique national research platforms and major research equipment. In FYs 2014 and 2013, the permanent indefinite appropriations for MREFC were \$200.0 million and \$196.2 million, respectively. In FY 2013, an additional \$12.5 million was transferred as a result of the exercise of the Administrative Provision described in Note 1D, *Revenue and Other Financing Sources*.

The EHR appropriation is used to support science and engineering education, and human resources programs and activities. In FYs 2014 and 2013, the permanent indefinite appropriations for EHR were \$60.9 million and \$50.5 million respectively, and are reported as current year transfers from the annual EHR appropriation.

**Note 12. Apportionment Categories of Obligations Incurred: Direct vs. Reimbursable Obligations**

OMB Circular No. A-11, *Preparation, Submission, and Execution of the Budget*, requires direct and reimbursable obligations be reported as Category A, Category B, or Exempt from Apportionment. In FYs 2014 and 2013, NSF's SF-133, *Report on Budget Execution and Budgetary Resources*, reported all obligations incurred under Category B which is by activity, project, or object. As of September 30, 2014 and 2013, direct obligations amounted to \$7.3 billion and \$7.1 billion, respectively, and reimbursable obligations amounted to \$103.6 million and \$118.7 million, respectively.

**Note 13. Explanation of Differences between the Statement of Budgetary Resources and the Budget of the United States Government**

SFFAS No. 7, *Accounting for Revenue and Other Financing Sources and Concepts for Reconciling Budgetary and Financial Accounting*, calls for explanations of material differences between amounts reported in the Statement of Budgetary Resources (SBR) and the actual balances published in the Budget of the United States Government (President's Budget). However, the President's Budget that will include FY 2014 actual budgetary execution information has not yet been published. The President's Budget is scheduled for publication in the spring of FY 2015 and can be found on the OMB website: <http://www.whitehouse.gov/omb>.

Balances reported in the FY 2013 SBR and the related President's Budget are shown in a table below for *Budgetary Resources, Obligations Incurred, Unobligated Balance - Unavailable, Distributed Offsetting Receipts*, and any related differences. The differences reported are due to differing reporting requirements for expired and unexpired appropriations between the Treasury guidance used to prepare the SBR and the OMB guidance used to prepare the President's Budget. The SBR includes both unexpired and expired appropriations, while the President's Budget discloses only unexpired budgetary resources that are available for new obligations. Additionally, the *Distributed Offsetting Receipts* amount on the SBR includes donations, while the President's Budget does not.

| (Amounts in Thousands)                    | 2013                   |                         |   |                                       |
|---|------------------------|-------------------------|---|---------------------------------------|
|   | Budgetary<br>Resources | Obligations<br>Incurred | Unobligated<br>Balance -<br>Unavailable | Distributed<br>Offsetting<br>Receipts |
| Combined Statement of Budgetary Resources | \$ 7,531,185           | \$ 7,237,741            | \$ 148,411                              | \$ 43,584                             |
| Budget of the U.S. Government             | \$ 7,340,395           | \$ 7,185,745            | \$ 9,617                                | \$ 3,000                              |
| Difference                                | \$ 190,790             | \$ 51,996               | \$ 138,794                              | \$ 40,584                             |

**Note 14. Undelivered Orders at the End of the Period**

In accordance with SFFAS No. 7, *Accounting for Revenue and Other Financing Sources*, the amount of budgetary obligated for undelivered orders for the periods ended September 30, 2014 and 2013 amounted to \$11.3 billion in both years.

**Note 15. Awards to Affiliated Institutions**

NSB members may be affiliated with institutions that are eligible to receive grants and awards from NSF. NSF made awards totaling \$992.5 million to board member affiliated institutions in FY 2014. The Board does not review all NSF award actions; however the following require NSB approval for the NSF Director to take action under delegated authority:

- Proposed awards, requests for proposals (RFPs), and solicitations that meet or exceed a threshold where the average annual award amount is the greater of one percent or more of the awarding Directorate's or Office's prior year plan or 0.1 percent or more of the prior year total NSF budget (enacted level);
- New programs where the total annualized awards exceed three percent of the awarding Directorate's or Office's prior year current plan, involve sensitive political or policy issues, or will be funded as an ongoing NSF-wide activity;
- Major construction projects.

The Director's Review Board (DRB) reviews proposed actions for evaluation adequacy and documentation, and compliance with Foundation policies, procedures and strategies. Items requiring DRB action include large awards and RFPs that meet or exceed a threshold of 2.5 percent of the prior year Division or Subactivity Plan. In addition, the DRB reviews all items requiring NSB action as well as NSB information items prior to submission.

NSF may fund awards meeting the above requirements to institutions affiliated with board members. Federal conflict-of-interest rules prohibit NSB members from participating in matters where they have a conflict of interest or there is an impartiality concern without prior authorization from the Designated Agency Ethics Official (DAEO). Prior to Board meetings, all NSB action items are screened for conflict-of-interest/impartiality concerns by the Office of the General Counsel. Members who have conflicts are either recused from the matter or receive a waiver from the DAEO to participate. In FY 2014, NSB approved two awards to board member affiliated institution.

**Note 16. Reconciliation of Net Cost of Operations to Budget**

| (Amounts in Thousands)  | 2014                | 2013                |
|---|---------------------|---------------------|
| <b>Resources Used To Finance Activities</b>   |                     |                     |
| Budgetary Resources Obligated   |                     |                     |
| Obligations Incurred  | \$ 7,407,202        | \$ 7,237,741        |
| Less: Spending Authority from Offsetting Collections and Recoveries   | <u>(221,005)</u>    | <u>(262,497)</u>    |
| Obligations Net of Offsetting Collections and Recoveries  | 7,186,197           | 6,975,244           |
| Less: Offsetting Receipts   | <u>(35,105)</u>     | <u>(43,584)</u>     |
| Net Obligations   | 7,151,092           | 6,931,660           |
| Other Resources   |                     |                     |
| Transfers In / (Out) Without Reimbursement  | -                   | 781                 |
| Imputed Financing   | 11,172              | 11,358              |
| Other Resources   | <u>(1,557)</u>      | <u>(4,800)</u>      |
| Net Other Resources Used to Finance Activities  | 9,615               | 7,339               |
| <b>Total Resources Used to Finance Activities</b>   | <b>7,160,707</b>    | <b>6,938,999</b>    |
| <b>Resources Used to Finance Items Not Part of the Net Cost of Operations</b>                                       |                     |                     |
| Change in Budgetary Resources Obligated for Goods, Services and Benefits Ordered but Not Yet Provided               | 65,203              | 124,450             |
| Resources that Fund Expenses Recognized in Prior Periods  | 323                 | (2,713)             |
| Budgetary Offsetting Collections and Receipts that Do Not Affect Net Cost of Operations                             | 35,105              | 43,584              |
| Resources that Finance the Acquisition of Assets  | <u>(24,549)</u>     | <u>(18,281)</u>     |
| <b>Total Resources Used to Finance Items Not Part of the Net Cost of Operations</b>                                 | <b>76,082</b>       | <b>147,040</b>      |
| <b>Total Resources Used to Finance Net Cost of Operations</b>   | <b>7,236,789</b>    | <b>7,086,039</b>    |
| <b>Components of the Net Cost of Operations that will not Require or Generate Resources in the Current Period</b>   |                     |                     |
| Components Requiring or Generating Resources in Future Periods  |                     |                     |
| Other   | <u>-</u>            | <u>67</u>           |
| <b>Total Components of Net Cost of Operations that will Require or Generate Resources in Future Periods</b>         | <b>-</b>            | <b>67</b>           |
| Components Not Requiring or Generating Resources  |                     |                     |
| Depreciation and Amortization   | 19,098              | 24,738              |
| Other   | <u>764</u>          | <u>6,227</u>        |
| <b>Total Components of Net Cost of Operations that will not Require or Generate Resources</b>                       | <b>19,862</b>       | <b>30,965</b>       |
| <b>Total Components of Net Cost of Operations that Will Not Require or Generate Resources in the Current Period</b> | <b>19,862</b>       | <b>31,032</b>       |
| <b>Net Cost of Operations</b>   | <b>\$ 7,256,651</b> | <b>\$ 7,117,071</b> |

## **Required Supplementary Stewardship Information**

### **Stewardship Investments**

For the Years Ended September 30, 2014 and 2013

**Required Supplementary Stewardship Information**  
**September 30, 2014 and 2013**

**Stewardship Investments**  
**Research and Human Capital**  
(Dollar Amounts in Thousands)

**Research and Human Capital Activities**

|  | <u>2014</u>         | <u>2013</u>         | <u>2012</u>         | <u>2011</u>         | <u>2010</u>      |
|--|---------------------|---------------------|---------------------|---------------------|------------------|
| Basic Research                                       | \$ 5,383,795        | \$ 5,446,790        | \$ 5,590,843        | \$ 5,401,356        | 5,249,579        |
| Applied Research                                     | 726,087             | 588,261             | 532,729             | 404,596             | 416,008          |
| Education and Training                               | 941,330             | 861,871             | 991,543             | 1,115,680           | 1,019,776        |
| Non-Investing Activities                             | 309,837             | 327,357             | 333,712             | 337,170             | 312,269          |
| <b>Total Research &amp; Human Capital Activities</b> | <u>\$ 7,361,049</u> | <u>\$ 7,224,279</u> | <u>\$ 7,448,827</u> | <u>\$ 7,258,802</u> | <u>6,997,632</u> |

**Inputs, Outputs and/or Outcomes**

**Research and Human Capital Activities**

Investments In:

|                              |                     |                     |                     |                     |                  |
|------------------------------|---------------------|---------------------|---------------------|---------------------|------------------|
| Universities                 | \$ 5,407,717        | \$ 5,025,068        | \$ 5,445,926        | \$ 5,192,332        | 5,103,835        |
| Industry                     | 286,916             | 337,818             | 280,452             | 350,115             | 286,419          |
| Federal Agencies             | 252,596             | 208,806             | 264,846             | 195,652             | 203,635          |
| Small Business               | 224,931             | 249,443             | 239,866             | 254,215             | 268,697          |
| Federally Funded R&D Centers | 234,515             | 280,032             | 229,474             | 231,234             | 246,217          |
| Non-Profit Organizations     | 529,482             | 605,059             | 523,772             | 522,958             | 408,441          |
| Other                        | 424,892             | 518,053             | 464,491             | 512,296             | 480,388          |
|                              | <u>\$ 7,361,049</u> | <u>\$ 7,224,279</u> | <u>\$ 7,448,827</u> | <u>\$ 7,258,802</u> | <u>6,997,632</u> |

Support To:

|                       |                     |                     |                     |                     |                  |
|-----------------------|---------------------|---------------------|---------------------|---------------------|------------------|
| Scientists            | \$ 550,800          | \$ 539,713          | \$ 544,452          | \$ 540,865          | 568,140          |
| Postdoctoral Programs | 190,188             | 190,564             | 192,863             | 196,071             | 188,665          |
| Graduate Students     | 586,443             | 568,548             | 574,557             | 564,021             | 602,990          |
|                       | <u>\$ 1,327,431</u> | <u>\$ 1,298,825</u> | <u>\$ 1,311,872</u> | <u>\$ 1,300,957</u> | <u>1,359,795</u> |

**Outputs & Outcomes:**

Number of:

|                         |         |         |         |        |        |
|-------------------------|---------|---------|---------|--------|--------|
| Award Actions           | 20,000  | 20,000  | 23,000  | 22,000 | 24,000 |
| Senior Researchers      | 41,000  | 44,000  | 56,000  | 53,000 | 55,000 |
| Other Professionals     | 17,000  | 14,000  | 14,000  | 14,000 | 15,000 |
| Postdoctoral Associates | 6,000   | 6,000   | 6,000   | 7,000  | 7,000  |
| Graduate Students       | 40,000  | 42,000  | 42,000  | 40,000 | 40,000 |
| Undergraduate Students  | 34,000  | 29,000  | 31,000  | 27,000 | 34,000 |
| K-12 Students           | 130,000 | 124,000 | 125,000 | 86,000 | 59,000 |
| K-12 Teachers           | 40,000  | 40,000  | 45,000  | 48,000 | 85,000 |

NSF's mission is to support basic scientific research and research fundamental to the engineering process as well as science and engineering education programs. NSF's Stewardship Investments fall principally into the categories of Research and Human Capital. For expenses incurred under the Research category, the majority of NSF funding is devoted to basic research, with a relatively small share going to applied research. This funding supports both the conduct of research and the necessary supporting infrastructure, including state-of-the-art instrumentation, equipment, computing resources, and multi-user facilities such as digital libraries, observatories, and research vessels and aircraft. Basic and applied research and education and training expenses are determined by prorating the program costs of NSF's R&RA, EHR, and MREFC appropriations, donations, and funds from dedicated collections reported on the Statement of Net Cost. The proration uses the basic and applied research and education and training percentages of total estimated research and development obligations reported in the FY 2015 Budget Request to Congress. The actual numbers are not available until later in the following fiscal year. Non-Investing activities reflect stewardship costs incurred from the AOAM, NSB and OIG appropriations.

The data provided for scientists, postdoctoral associates, and graduate students are obtained from NSF's award budget information as recorded at the time the award is made. The number of award actions are actual values from NSF's Enterprise Information System (EIS). The remaining outputs and outcomes are estimates provided annually by the NSF Directorates. These estimates are reported in the NSF annual Budget Request to Congress.

NSF's Human Capital investments focus principally on education and training, toward a goal of creating a diverse, internationally competitive and globally engaged workforce of scientists, engineers and well-prepared citizens. NSF supports activities to improve formal and informal science, mathematics, engineering and technology education at all levels, as well as public science literacy projects that engage people of all ages in life-long learning. The number of K-12 students involved in NSF activities are based on a robust data collection and analysis process.



## **Required Supplementary Information**

**Deferred Maintenance and Repairs**  
For the Years Ended September 30, 2014 and 2013

### **Deferred Maintenance and Repairs**

NSF performs condition assessment surveys in accordance with FASAB Standard No. 42 for capitalized general property, plant and equipment (PP&E) to determine if any maintenance and repairs are needed to keep an asset in an acceptable condition or restore an asset to a specific level of performance. NSF considers deferred maintenance and repairs to be any maintenance and repairs that are not performed on schedule, unless it is determined from the condition of the asset that scheduled maintenance does not have to be performed. Deferred maintenance and repairs also include any other type of maintenance or repair that, if not performed, would render the PP&E non-operational. Circumstances such as non-availability of parts or funding are considered reasons for deferring maintenance and repairs.

NSF considered whether any scheduled maintenance or repair necessary to keep fixed assets of the agency in an acceptable condition was deferred at the end of the periods ended September 30, 2014 and 2013. Assets deemed to be in excellent, good, or fair condition are considered to be in acceptable condition. Assets in poor condition are in unacceptable condition and the deferred maintenance and repairs required to get them to an acceptable condition are reported. NSF determines the condition of an asset in accordance with standards comparable to those used in the private industry. Due to the environment and remote location of Antarctica, all deferred maintenance and repairs on assets in poor condition is considered critical in order to maintain operational status.

At September 30, 2014, NSF determined that there was no scheduled maintenance or repairs on Antarctic capital equipment in poor condition that was not completed and was deferred or delayed for a future period.

At September 30, 2013, NSF determined that scheduled maintenance on one item of Antarctic capital equipment in poor condition was not completed and was deferred or delayed for a future period. The dollar amount of deferred maintenance for this item was \$1.8 thousand. The item is light, mobile equipment and is considered critical to NSF operations.

## **Required Supplementary Information**

### **Budgetary Resources by Major Budget Accounts**

In the following tables, NSF budgetary information for the fiscal years ended September 30, 2014 and 2013, as presented in the Statement of Budgetary Resources, is disaggregated for each of NSF's major budget accounts.

**Required Supplementary Information**  
**September 30, 2014 and 2013**

**The Science Appropriations Act, 2014**

**2014**  
(Amounts in Thousands)

|  | <u>Research and<br/>Related Activities</u> | <u>Education and<br/>Human Resources</u> | <u>Major Research<br/>Equipment</u> | <u>OIG, AOAM, and<br/>NSB</u> | <u>Special and<br/>Donated</u> | <u>Total</u>        |
|--|--|--|-------------------------------------|-------------------------------|--------------------------------|---------------------|
| <b>Budgetary Resources</b>   |  |  |                                     |                               |                                |                     |
| Unobligated Balance - Brought Forward, October 1                       | \$ 117,327                                 | 32,548                                   | 380                                 | 5,876                         | 137,313                        | \$ 293,444          |
| Recoveries of Prior Year Unpaid Obligations                            | 88,389                                     | 21,294                                   | 10                                  | 4,042                         | 5,549                          | 119,284             |
| Other Changes in Unobligated Balance                                   | (29,322)                                   | (13,540)                                 | -                                   | (3,147)                       | -                              | (46,009)            |
| Unobligated Balance from Prior Year Budget Authority, Net              | 176,394                                    | 40,302                                   | 390                                 | 6,771                         | 142,862                        | 366,719             |
| Appropriations   | 5,801,634                                  | 845,438                                  | 200,000                             | 324,847                       | 160,576                        | 7,332,495           |
| Spending Authority from Offsetting Collections                         | 90,760                                     | 5,100                                    | -                                   | 5,861                         | -                              | 101,721             |
| <b>Total Budgetary Resources</b>                                       | <b>\$ 6,068,788</b>                        | <b>890,840</b>                           | <b>200,390</b>                      | <b>337,479</b>                | <b>303,438</b>                 | <b>\$ 7,800,935</b> |
| <b>Status of Budgetary Resources</b>                                   |  |  |                                     |                               |                                |                     |
| Obligations Incurred   | \$ 5,866,308                               | 842,333                                  | 200,000                             | 331,322                       | 167,239                        | \$ 7,407,202        |
| Unobligated Balance, End of Year                                       |  |  |                                     |                               |                                |                     |
| Apportioned  | 56,976                                     | 15,672                                   | 380                                 | 799                           | 121,843                        | 195,670             |
| Unapportioned  | 145,504                                    | 32,835                                   | 10                                  | 5,358                         | 14,356                         | 198,063             |
| Total Unobligated Balance, End of Year                                 | 202,480                                    | 48,507                                   | 390                                 | 6,157                         | 136,199                        | 393,733             |
| <b>Total Status of Budgetary Resources</b>                             | <b>\$ 6,068,788</b>                        | <b>890,840</b>                           | <b>200,390</b>                      | <b>337,479</b>                | <b>303,438</b>                 | <b>\$ 7,800,935</b> |
| <b>Change in Obligated Balance</b>                                     |  |  |                                     |                               |                                |                     |
| Unpaid Obligations   |  |  |                                     |                               |                                |                     |
| Unpaid Obligations - Brought Forward, October 1, Gross                 | \$ 9,058,656                               | 1,670,649                                | 366,884                             | 75,961                        | 299,119                        | \$ 11,471,269       |
| Obligations Incurred   | 5,866,308                                  | 842,333                                  | 200,000                             | 331,322                       | 167,239                        | 7,407,202           |
| Gross Outlays  | (5,662,659)                                | (824,082)                                | (279,517)                           | (315,494)                     | (132,796)                      | (7,214,548)         |
| Recoveries of Prior Year Unpaid Obligations                            | (88,389)                                   | (21,294)                                 | (10)                                | (4,042)                       | (5,549)                        | (119,284)           |
| Unpaid Obligations - End of Year, Gross                                | 9,173,916                                  | 1,667,606                                | 287,357                             | 87,747                        | 328,013                        | 11,544,639          |
| Uncollected Payments   |  |  |                                     |                               |                                |                     |
| Uncollected Payments from Federal Sources - Brought Forward, October 1 | \$ (138,018)                               | (4,905)                                  | -                                   | (3,579)                       | -                              | \$ (146,502)        |
| Change in Uncollected Payments from Federal Sources                    | 21,510                                     | (1,290)                                  | -                                   | 3,347                         | -                              | 23,567              |
| Uncollected Payments from Federal Sources, End of Year                 | (116,508)                                  | (6,195)                                  | -                                   | (232)                         | -                              | (122,935)           |
| Memorandum (non-add) Entries   |  |  |                                     |                               |                                |                     |
| Obligated Balance - Start of Year                                      | \$ 8,920,638                               | 1,665,744                                | 366,884                             | 72,382                        | 299,119                        | \$ 11,324,767       |
| Obligated Balance - End of Year  | \$ 9,057,408                               | 1,661,411                                | 287,357                             | 87,515                        | 328,013                        | \$ 11,421,704       |
| Budget Authority, Gross  |  |  |                                     |                               |                                |                     |
| Budget Authority, Gross  | \$ 5,892,394                               | 850,538                                  | 200,000                             | 330,708                       | 160,576                        | \$ 7,434,216        |
| Actual Offsetting Collections  | (112,269)                                  | (3,811)                                  | -                                   | (9,208)                       | -                              | (125,288)           |
| Change in Uncollected Customer Payments from Federal Sources           | 21,510                                     | (1,290)                                  | -                                   | 3,347                         | -                              | 23,567              |
| <b>Budget Authority, Net</b>   | <b>\$ 5,801,635</b>                        | <b>845,437</b>                           | <b>200,000</b>                      | <b>324,847</b>                | <b>160,576</b>                 | <b>\$ 7,332,495</b> |
| Gross Outlays  |  |  |                                     |                               |                                |                     |
| Gross Outlays  | \$ 5,662,659                               | 824,082                                  | 279,517                             | 315,494                       | 132,796                        | \$ 7,214,548        |
| Actual Offsetting Collections  | (112,269)                                  | (3,811)                                  | -                                   | (9,208)                       | -                              | (125,288)           |
| <b>Net Outlays</b>   | <b>5,550,390</b>                           | <b>820,271</b>                           | <b>279,517</b>                      | <b>306,286</b>                | <b>132,796</b>                 | <b>7,089,260</b>    |
| Distributed Offsetting Receipts  | -  | -  | -                                   | -                             | (35,105)                       | (35,105)            |
| <b>Net Agency Outlays</b>  | <b>\$ 5,550,390</b>                        | <b>820,271</b>                           | <b>279,517</b>                      | <b>306,286</b>                | <b>97,691</b>                  | <b>\$ 7,054,155</b> |

**Required Supplementary Information**  
**September 30, 2014 and 2013**

**The Science Appropriations Act, 2013**

**2013**  
(Amounts in Thousands)

|  | <u>Research and<br/>Related Activities</u> | <u>Education and<br/>Human<br/>Resources</u> | <u>Major Research<br/>Equipment</u> | <u>OIG, AOAM, and<br/>NSB</u> | <u>Special and<br/>Donated</u> | <u>Total</u>        |
|--|--|--|-------------------------------------|-------------------------------|--------------------------------|---------------------|
| <b>Budgetary Resources</b>   |  |  |                                     |                               |                                |                     |
| Unobligated Balance - Brought Forward, October 1                         | \$ 98,939                                  | 29,090                                       | 686                                 | 6,993                         | 141,432                        | \$ 277,140          |
| Recoveries of Prior Year Unpaid Obligations                              | 119,486                                    | 23,504                                       | 12                                  | 3,180                         | 4,791                          | 150,973             |
| Other Changes in Unobligated Balance                                     | (31,436)                                   | (14,370)                                     | -                                   | (2,967)                       | -                              | (48,773)            |
| Unobligated Balance from Prior Year Budget Authority, Net Appropriations | 186,989                                    | 38,224                                       | 698                                 | 7,206                         | 146,223                        | 379,340             |
| Spending Authority from Offsetting Collections                           | 5,543,716                                  | 833,312                                      | 196,170                             | 310,916                       | 156,207                        | 7,040,321           |
|  | 104,052                                    | 636  | -                                   | 6,828                         | 8                              | 111,524             |
| <b>Total Budgetary Resources</b>   | <b>\$ 5,834,757</b>                        | <b>872,172</b>                               | <b>196,868</b>                      | <b>324,950</b>                | <b>302,438</b>                 | <b>\$ 7,531,185</b> |
| <b>Status of Budgetary Resources</b>                                     |  |  |                                     |                               |                                |                     |
| Obligations Incurred   | \$ 5,717,430                               | 839,624                                      | 196,488                             | 319,074                       | 165,125                        | \$ 7,237,741        |
| Unobligated Balance, End of Year   |  |  |                                     |                               |                                |                     |
| Apportioned  | 9,346                                      | 182  | 373                                 | 150                           | 134,982                        | 145,033             |
| Unapportioned  | 107,981                                    | 32,366                                       | 7                                   | 5,726                         | 2,331                          | 148,411             |
| Total Unobligated Balance, End of Year                                   | 117,327                                    | 32,548                                       | 380                                 | 5,876                         | 137,313                        | 293,444             |
| <b>Total Status of Budgetary Resources</b>                               | <b>\$ 5,834,757</b>                        | <b>872,172</b>                               | <b>196,868</b>                      | <b>324,950</b>                | <b>302,438</b>                 | <b>\$ 7,531,185</b> |
| <b>Change in Obligated Balance</b>                                       |  |  |                                     |                               |                                |                     |
| Unpaid Obligations   |  |  |                                     |                               |                                |                     |
| Unpaid Obligations - Brought Forward, October 1, Gross                   | \$ 9,507,545                               | 1,646,027                                    | 415,110                             | 77,139                        | 300,928                        | \$ 11,946,749       |
| Obligations Incurred   | 5,717,430                                  | 839,624                                      | 196,488                             | 319,074                       | 165,125                        | 7,237,741           |
| Gross Outlays  | (6,046,833)                                | (791,498)                                    | (244,702)                           | (317,072)                     | (162,143)                      | (7,562,248)         |
| Recoveries of Prior Year Unpaid Obligations                              | (119,486)                                  | (23,504)                                     | (12)                                | (3,180)                       | (4,791)                        | (150,973)           |
| Unpaid Obligations - End of Year, Gross                                  | 9,058,656                                  | 1,670,649                                    | 366,884                             | 75,961                        | 299,119                        | 11,471,269          |
| Uncollected Payments   |  |  |                                     |                               |                                |                     |
| Uncollected Payments from Federal Sources - Brought Forward, October 1   | \$ (125,574)                               | (10,733)                                     | -                                   | (189)                         | -                              | \$ (136,496)        |
| Change in Uncollected Payments from Federal Sources                      | (12,444)                                   | 5,828  | -                                   | (3,390)                       | -                              | (10,006)            |
| Uncollected Payments from Federal Sources, End of Year                   | (138,018)                                  | (4,905)                                      | -                                   | (3,579)                       | -                              | (146,502)           |
| Memorandum (non-add) Entries   |  |  |                                     |                               |                                |                     |
| Obligated Balance - Start of Year  | \$ 9,381,971                               | 1,635,294                                    | 415,110                             | 76,950                        | 300,928                        | \$ 11,810,253       |
| Obligated Balance - End of Year  | \$ 8,920,638                               | 1,665,744                                    | 366,884                             | 72,382                        | 299,119                        | \$ 11,324,767       |
| <b>Budget Authority and Outlays, Net</b>                                 |  |  |                                     |                               |                                |                     |
| Budget Authority, Gross  | \$ 5,647,768                               | 833,948                                      | 196,170                             | 317,744                       | 156,215                        | \$ 7,151,845        |
| Actual Offsetting Collections  | (91,608)                                   | (6,464)                                      | -                                   | (3,437)                       | (9)                            | (101,518)           |
| Change in Uncollected Customer Payments from Federal Sources             | (12,444)                                   | 5,828  | -                                   | (3,390)                       | -                              | (10,006)            |
| <b>Budget Authority, Net</b>   | <b>\$ 5,543,716</b>                        | <b>833,312</b>                               | <b>196,170</b>                      | <b>310,917</b>                | <b>156,206</b>                 | <b>\$ 7,040,321</b> |
| Gross Outlays  | \$ 6,046,833                               | 791,498                                      | 244,702                             | 317,072                       | 162,143                        | \$ 7,562,248        |
| Actual Offsetting Collections  | (91,608)                                   | (6,464)                                      | -                                   | (3,437)                       | (9)                            | (101,518)           |
| Net Outlays  | 5,955,225                                  | 785,034                                      | 244,702                             | 313,635                       | 162,134                        | 7,460,730           |
| Distributed Offsetting Receipts  | -  | -  | -                                   | -                             | (43,584)                       | (43,584)            |
| Net Agency Outlays   | \$ 5,955,225                               | 785,034                                      | 244,702                             | 313,635                       | 118,550                        | \$ 7,417,146        |

**Other Information**

**Schedule of Spending**

For the Years Ended September 30, 2014 and 2013

The Schedule of Spending (SOS) was developed to make information about government spending more accessible and transparent to the public. To help achieve this goal, specific line items found in the Statement of Budgetary Resources (SBR), which relate to government spending, have been simplified and reorganized to help readers better understand accounting terminology. The focus of the SOS is to provide a user-friendly report that answers the following questions:

- 1) **What money is available to spend?** This section ties directly to the SBR and indicates the total resources available less funds that were unobligated or unavailable for spending.
- 2) **How was the money spent/issued?** This section presents total obligations incurred and shows the most significant goods or services purchased, as well as payment types, by appropriation category. The Other line is comprised of miscellaneous management expenses.
- 3) **Who did the money go to?** This section presents total obligations incurred by the type of entity the funds were awarded to. The presentation is similar to the RSSI Investments in Research and Human Capital Activities section, however the SOS presents performance organization data for new obligations incurred and the RSSI presents performance organization data for expenditures incurred.
- 4) **How does the SOS compare to the SBR and USASpending.gov?** This section describes the similarities and differences between the Schedule of Spending, Statement of Budgetary Resources and the USASpending.gov website.

**National Science Foundation**  
**Schedule of Spending**  
**For the Year Ended September 30, 2014**  
**(Amounts in Thousands)**

**What Money is Available to Spend?**

|  |                            |
|--|----------------------------|
| Total Resources                                  | \$ 7,800,935               |
| Less Amount Available but Not Agreed to be Spent | 195,670                    |
| Less Amount Not Available to be Spent            | 198,063                    |
| <b>Total Amounts Agreed to be Spent</b>          | <b>\$ <u>7,407,202</u></b> |

| <b>How Was the Money Spent/Issued?</b>  | <b><u>Research and</u></b>       | <b><u>Education and</u></b> | <b><u>Major</u></b>     | <b><u>OIG, AOAM</u></b> | <b><u>Special and</u></b> | <b><u>Total</u></b>     |
|---|----------------------------------|-----------------------------|-------------------------|-------------------------|---------------------------|-------------------------|
|   | <b><u>Related Activities</u></b> | <b><u>Human</u></b>         | <b><u>Research</u></b>  | <b><u>and NSB</u></b>   | <b><u>Donated</u></b>     |                         |
|   |                                  | <b><u>Resources</u></b>     | <b><u>Equipment</u></b> |                         |                           |                         |
| Compensation and Benefits               | \$ 969                           | 134                         | -                       | 216,645                 | 10                        | 217,758                 |
| Travel and Transportation of Persons    | 13,996                           | 1,819                       | -                       | 5,346                   | 246                       | 21,407                  |
| Contracts                               | 522,133                          | 24,576                      | 125                     | 74,393                  | 5,180                     | 626,407                 |
| Rent, Communications, and Utilities     | 118                              | 76                          | -                       | 34,907                  | 13                        | 35,114                  |
| Grants, Subsidies and Contributions     | 5,329,092                        | 815,728                     | 199,875                 | 30                      | 161,789                   | 6,506,514               |
| Other                                   | -                                | -                           | -                       | 1                       | 1                         | 2                       |
| <b>Total Amounts Agreed to be Spent</b> | <b>\$ <u>5,866,308</u></b>       | <b><u>842,333</u></b>       | <b><u>200,000</u></b>   | <b><u>331,322</u></b>   | <b><u>167,239</u></b>     | <b><u>7,407,202</u></b> |

**Who did the Money go to?**

|   |                            |
|---|----------------------------|
| Universities                            | \$ 5,472,779               |
| Industry                                | 313,999                    |
| Federal Agencies                        | 224,664                    |
| Small Business                          | 225,609                    |
| FFRDC                                   | 218,481                    |
| Non- Profit                             | 523,650                    |
| Other                                   | 428,020                    |
| <b>Total Amounts Agreed to be Spent</b> | <b>\$ <u>7,407,202</u></b> |



**National Science Foundation**  
**Schedule of Spending**  
**For the Year Ended September 30, 2013**  
**(Amounts in Thousands)**

**What Money is Available to Spend?**

|  |                     |
|--|---------------------|
| Total Resources                                  | \$ 7,531,185        |
| Less Amount Available but Not Agreed to be Spent | 145,033             |
| Less Amount Not Available to be Spent            | 148,411             |
| <b>Total Amounts Agreed to be Spent</b>          | <b>\$ 7,237,741</b> |

**How Was the Money Spent/Issued?**

|   | <u>Research and<br/>Related Activities</u> | <u>Education and<br/>Human<br/>Resources</u> | <u>Major<br/>Research<br/>Equipment</u> | <u>OIG, AOAM<br/>and NSB</u> | <u>Special and<br/>Donated</u> | <u>Total</u>     |
|---|--|--|---|------------------------------|--------------------------------|------------------|
| Compensation and Benefits               | \$ 744                                     | 138  | -                                       | 213,858                      | 8                              | 214,748          |
| Travel and Transportation of Persons    | 13,088                                     | 2,262  | 18                                      | 4,850                        | 223                            | 20,441           |
| Contracts                               | 491,504                                    | 25,396                                       | 4,666                                   | 68,727                       | 17,893                         | 608,186          |
| Rent, Communications, and Utilities     | 145  | 49   | -                                       | 31,523                       | 14                             | 31,731           |
| Grants, Subsidies and Contributions     | 5,211,949                                  | 811,779                                      | 191,804                                 | 113                          | 146,948                        | 6,362,593        |
| Other                                   | -  | -  | -                                       | 3                            | 39                             | 42               |
| <b>Total Amounts Agreed to be Spent</b> | <b>\$ 5,717,430</b>                        | <b>839,624</b>                               | <b>196,488</b>                          | <b>319,074</b>               | <b>165,125</b>                 | <b>7,237,741</b> |

**Who did the Money go to?**

|   |                     |
|---|---------------------|
| Universities                            | \$ 5,336,051        |
| Industry                                | 305,327             |
| Federal Agencies                        | 215,581             |
| Small Business                          | 246,230             |
| FFRDC                                   | 182,544             |
| Non- Profit                             | 499,570             |
| Other                                   | 452,437             |
| <b>Total Amounts Agreed to be Spent</b> | <b>\$ 7,237,741</b> |

### **How Does the SOS Compare to the SBR and USASpending.gov?**

The SOS, Statement of Budgetary Resources (SBR) and the USASpending.gov website all serve a purpose to provide transparency to the general public regarding how federal agencies obtain funding and where those funds are spent. These reports display NSF spending information at various levels of detail to provide a wide range of information to the readers. The SBR is prepared using the United States Standard General Ledger (USSGL) trial balance and provides information about how budgetary resources were made available as well as their status at the end of the period. Data reported on the SBR is ultimately reconcilable with data reported in the Budget of the United States Government. The SOS presents total budgetary resources and the total amounts agreed to be spent which equates to fiscal year-to-date obligations reported on the SBR. This schedule provides the reader with detailed agency information that describes the types of activities NSF's resources will be used for and who these resources will be given to. Like the SOS, USASpending.gov also provides agency obligation information on awards and contracts that have been obligated over the past ten fiscal years. Variances between USASpending.gov and SOS data can be attributed to the following:

- USASpending.gov includes obligation information for contracts and grants, only. The SOS includes additional obligation information to include travel, employee salaries and benefits, and rent.
- USASpending.gov includes grant and contract data associated with specific Budget Object Classes. The SOS classifies a larger population of Budget Object Classes as a grant or contract.
- USASpending.gov excludes contracts where the total amount funded does not exceed \$25.0 thousand. The SOS includes all contracts, regardless of dollar value.
- USASpending.gov does not include awards made to other Federal agencies via Outgoing Interagency Agreements (IAA); whereas, the SOS includes these awards.
- The SOS includes accruals and other financial information applicable to, but posted subsequent to September 30, 2014 and 2013. USASpending.gov data is based on financial information that is included in the financial system on September 30.

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INSE

Chapter 3

**Appendices**

## Summary of FY 2014 Financial Statement Audit and Management Assurances

**Table 1. Summary of Financial Statement Audit**

|                           |                   |     |          |              |                |
|---------------------------|-------------------|-----|----------|--------------|----------------|
| Audit Opinion             | <i>Unmodified</i> |     |          |              |                |
| Restatement               | <i>No</i>         |     |          |              |                |
| Material Weakness         | Beginning Balance | New | Resolved | Consolidated | Ending Balance |
| Total Material Weaknesses | 0                 | -   | -        | -            | 0              |

**Table 2. Summary of Management Assurances**

| Effectiveness of Internal Control over Financial Reporting (FMFIA § 2)                     |  |     |          |              |                |
|--|--|-----|----------|--------------|----------------|
| Statement of Assurance   | <i>Unqualified</i>   |     |          |              |                |
|  | Beginning Balance  | New | Resolved | Consolidated | Ending Balance |
| <i>Total Material Weaknesses</i>   | 0  | -   | -        | -            | 0              |
| Effectiveness of Internal Control over Operations (FMFIA § 2)                              |  |     |          |              |                |
| Statement of Assurance   | <i>Unqualified</i>   |     |          |              |                |
|  | Beginning Balance  | New | Resolved | Consolidated | Ending Balance |
| <i>Total Material Weaknesses</i>   | 0  | -   | -        | -            | 0              |
| Conformance with Financial Management System Requirements (FMFIA § 4)                      |  |     |          |              |                |
| Statement of Assurance   | <i>Systems conform to financial management system requirements</i> |     |          |              |                |
|  | Beginning Balance  | New | Resolved | Consolidated | Ending Balance |
| <i>Total Non-Conformances</i>  | 0  | -   | -        | -            | 0              |
| Compliance with Section 803(a) of the Federal Financial Management Improvement Act (FFMIA) |  |     |          |              |                |
|  | Agency   |     | Auditor  |              |                |
| 1. System Requirements   | <i>No lack of substantial compliance noted</i>                     |     |          |              |                |
| 2. Accounting Standards  | <i>No lack of substantial compliance noted</i>                     |     |          |              |                |
| 3. U.S. Standard General Ledger at Transaction level                                       | <i>No lack of substantial compliance noted</i>                     |     |          |              |                |

## **National Science Foundation**

### **FY 2014 Improper Payments Elimination and Recovery Act (IPERA) Reporting Details**

#### **I. Risk Assessment**

NSF developed a robust risk assessment for its single program, grants, utilizing OMB criteria as contained in Appendix C, *Management's Responsibility for Internal Control* of OMB Circular No. A-123. The risk assessment employed both a qualitative and quantitative approach in determining NSF's level of susceptibility to improper payments from grant outlays. The risk assessment reviewed NSF's financial processing and internal controls, monitoring and assessment, human capital, operations and management, volume of payments, and materiality. The risk assessment did not indicate significant susceptibility to improper payments for NSF grants. However, the categories of unallowable costs identified and other factors related to the administration of fellowship and cooperative support agreement award instruments indicated areas that will be further reviewed.

NSF developed and received OMB approval for a *sampling estimation plan* for improper payments in accordance with Appendix C, *Management's Responsibility for Internal Control* of OMB Circular No. A-123. The plan was prepared and submitted to OMB prior to completion of risk assessment. NSF's corrective action plan, which includes the development of qualitative and quantitative factors for the risk assessment and the sampling methodology, serves as the response to the NSF Office of Inspector General's FY 2012 *Agency Financial Report* (AFR) audit findings related to past year's improper payments sampling processes. The new sampling plan considered the implementation of the NSF Award Cash Management Service application, which now provides added capacity and precision in tracking and overseeing awardee expenditures.

The sampling plan was developed to minimize the burden on the grantee and took into account the decentralization of grantee payment data. The precision approved by OMB consists of a 90% confidence level, 3% error rate, and a 15.5% confidence interval. This precision allows a statistically valid sampling approach with a reasonable sample size for testing.

#### **II. Statistical Sampling**

As described above, NSF's grants program is not susceptible to significant improper payments. However, the agency is following-up on certain risk assessment results through its monitoring program.

**III. Corrective Actions:** Not applicable.

**IV. Improper Payment Reporting:** Not applicable.

#### **V. Recapture of Improper Payments Reporting:**

During FY 2014, NSF leveraged its Internal Control Program to revise its IPERA risk assessment and improper payment estimation methodologies. This assured that we were responsive to the related OMB criteria and reporting requirements, which focused on detection.

Our risk assessment's quantitative and qualitative factors for NSF's singular grant program did not indicate that recapture audits were warranted at this time.

When NSF has grant findings that potentially require repayment by an institution of agency funds, NSF receives the audit findings and performs an audit resolution process. This process is designed to resolve the findings and specify the outcome of the initial issues, which may include repayment to the agency. NSF's audit resolution policy is consistent with OMB Circulars A-50, *Audit Follow-up* and A-133, *Audits of States, Local Governments, and Non-Profit Organizations*.

With respect to contracts, the activity for the period that the Internal Controls Program tested made up an insignificant percentage of the recorded payment transactions. This immateriality, coupled with NSF's Internal Control Program procure-to-pay review and cost incurred audits on high risk contracts do not make it cost beneficial to establish a recapture audits program.

**VI. Accountability:** Not applicable.

## **VII. Agency Information Systems and Other Infrastructure**

- a. **Describe whether the agency has the internal controls, human capital, and information systems and other infrastructure it needs to reduce improper payments to the levels the agency has targeted.**

Not applicable.

- b. **If the agency does not have such internal controls, human capital, and information systems and other infrastructure, describe the resources the agency requested in its most recent budget submission to Congress to establish and maintain the necessary internal controls, human capital, and information systems and other infrastructure.**

Not applicable.

**VIII. Barriers:** Not applicable.

**IX. Additional Comments:** Not applicable.

## **X. Agency Reduction of Improper Payments with the Do Not Pay Initiative**

NSF has been actively participating in OMB's Do Not Pay (DNP) initiative to reduce improper payments through the implementation of pre-award and post payment activities. For pre-award activities, the agency has incorporated the DNP solution into its pre-award review process for all grants and cooperative agreements. NSF was the first agency to institute a batch process for pre-award reviews. The DNP Solution complements NSF's existing policies and procedures for award management, and the agency has integrated the new functionality into its award management process. NSF has also automated the reviews and centralized the pre-award verification. This has created efficiency gains by reducing the workload for manual verification.

**Appendix 2: Improper Payments Elimination and Recovery Act Reporting**

NSF has incorporated multiple Improper Payment Elimination and Recovery Improvement Act (IPERIA) listed Do Not Pay databases into its business operations. For post-payment activities, NSF uses the Department of Treasury’s “Do Not Pay System” to perform a matching process against the Social Security Administration’s Death Master File (DMF) and the General Services Administration’s (GSA) Excluded Parties List System (EPLS) and the System for Award Management (SAM). NSF determined that the remaining databases do not apply to its business operations. Since inception of the DNP databases, NSF has had no positive matches for DMF, EPLS and SAM. In FY 2014, NSF reviewed over 49,000 payments for over \$6 billion with no matches for the DMF and has reconciled 582 matches with the EPLS and SAM with all related payments found to be proper. The table that follows is a summary of monthly reports requested by the DNP program.

**Implementation of the Do Not Pay Initiative to Prevent Improper Payments  
FY 2014 (through September 30th)**

|                               | <b>Number of Payments Reviewed for Improper Payments</b> | <b>Dollars of Payments Reviewed for Improper Payments</b> | <b>Number of Payments Stopped</b> | <b>Dollars of Payments Stopped</b> | <b>Number of Improper Payments Reviewed and Not Stopped</b> | <b>Dollars of Improper Payments Reviewed and not Stopped</b> |
|-------------------------------|--|---|-----------------------------------|------------------------------------|---|--|
| Reviews with the DMF          | 53,331   | \$6,903,438,320   | 0                                 | 0                                  | 0   | 0  |
| Reviews with the EPLS and SAM | 53,331   | \$6,903,438,320   | 0                                 | 0                                  | 0   | 0  |

DMF: Social Security Death Master File  
 EPLS: GSA Excluded Parties List System  
 SAM: GSA System for Award Management



**National Science Foundation • Office of Inspector General**  
4201 Wilson Boulevard, Arlington, Virginia 22230

October 23, 2014

TO: Dr. Dan E. Arvizu  
Chair, National Science Board

Dr. France Córdova  
Director, National Science Foundation

FROM: Allison Lerner *Allison Lerner*  
Inspector General, National Science Foundation

SUBJECT: Management Challenges for NSF in FY 2015

In accordance with Reports Consolidation Act of 2000, I am submitting our annual statement summarizing what the Office of Inspector General considers to be the most serious management and performance challenges facing the National Science Foundation (NSF). We have compiled this list based on our audit and investigative work, general knowledge of the agency's operations and evaluative reports of others, including the Government Accountability Office and NSF's various advisory committees, contractors, and staff.

We have focused on six issue areas that reflect fundamental program risk and are likely to require management's attention for years to come. They are:

- Establishing Accountability over Large Cooperative Agreements
- Improving Grant Administration
- Managing the U.S. Antarctic Program
- Moving NSF Headquarters to a New Building
- Managing Programs and Resources in Times of Budget Austerity
- Encouraging Ethical Conduct of Research

For the past four years, we have focused significant attention on NSF's accountability over its high-dollar, high-risk cooperative agreements for construction of large facility projects. In that time, four major projects totaling more than \$1.4 billion were funded. Our work raised serious questions about whether NSF had sufficient information to ensure that the budgets represented the basis for a fair and reasonable price. In light of that work, we have repeatedly recommended that NSF obtain proposal and accounting system audits for high-risk cooperative agreements to ensure that costs estimates are fair and reasonable and that proposer's accounting systems are adequate to bill the government properly.



Since our emphasis has been on cooperative agreements and since contract administration was not cited as a significant deficiency in NSF's FY 2013 financial statement audit, we did not include contract administration as a top management challenge this year. In addition, NSF reported that it has taken several steps to strengthen contract administration including ensuring Cost Accounting Standards Disclosure Statements are determined adequate for covered contracts and providing additional guidance in its acquisition manual. We will continue to monitor NSF's progress toward implementing improvements in contract administration. Also, in FY 2015, the OIG will conduct two contract audits related to polar services as well as an audit of the final payment voucher for Raytheon's Antarctic support contract.

Finally, since 90 percent of ARRA awards are now closed, we have removed stewardship of ARRA funds as a top management challenge. However, our FY 2015 workplan includes audits of 16 institutions that received ARRA funds. Among our things, these audits will determine whether institutions are properly accounting for ARRA funds as required and whether ARRA quarterly reports are accurate.

If you have any questions, or need additional information, please call me at 703-292-7100.

**CHALLENGE: Establishing Accountability over Large Cooperative Agreements**

**Overview:** As of August 2013, NSF had 23 cooperative agreements worth over \$50 million each and totaling over \$4.2 billion. Over the last four years, audits of the proposed construction budgets for three of these non-competitive proposals valued at \$1.1 billion found that they contained approximately \$305 million (almost 28 percent), in unallowable or unsupported costs.

It is essential that NSF exercise strong cost surveillance controls throughout the lifecycle of its high-risk, high-dollar large facility projects. At the pre-award stage, proposed costs by awardees should be supported by current, accurate, and complete documentation and awardees' accounting systems must be capable of properly managing federal funds. After an award has been made, NSF and the OIG should have access to information needed for adequate oversight of these projects.

After four years of audit effort, NSF's proposed actions in this area remain short of the standard necessary to adequately safeguard federal funds and leave millions of dollars at risk. Therefore, in May 2014 the OIG escalated a series of recommendations made to address these concerns to Deputy Director, who is NSF's Audit Follow-up Official. Escalation of recommendations is the final step available to the OIG in an attempt to urge NSF to strengthen accountability and to exercise proper stewardship of federal funds.

**Challenge for the Agency:** It is an ongoing challenge for NSF to establish accountability for the billions of federal funds in its large cooperative agreements at the pre- and post-award stages and throughout the lifecycle of the projects.

The Large Synoptic Survey Telescope (LSST) project was the first construction project NSF considered since our 2012 alert memo on the agency's management of its high-risk, high-dollar cooperative agreements. Among other things, that memo recommended that NSF obtain proposal and accounting systems audits to ensure that cost estimates for such projects were fair and reasonable and that proposers' accounting systems were adequate to bill the government properly.

We found that NSF's internal review of the cost of the LSST project could not independently verify costs for any of the 136 proposed expenditures sampled, including approximately \$145 million in direct materials, nearly \$20 million for contingencies and more than \$6 million in direct labor costs.

In September 2014, we issued an alert memo expressing our strong concern that NSF did not have sufficient information to establish a reasonable basis for the cost of the LSST project. As a result, NSF has limited insight into the makeup of the project's cost and little if any, assurance that they are reasonable.

In addition, NSF is conducting the LSST project under a cooperative agreement with the Association of Universities for Research in Astronomy (AURA). For four years, audits have repeatedly documented significant estimating deficiencies with AURA and concluded that AURA does not have an effective process for preparing adequate proposals. In light of the known and continuing deficiencies with AURA's estimating practices and cost proposals and the

lingering uncertainties about the reasonableness, accuracy, and currency of many of the costs proposed for the LSST project, NSF should take immediate and strong action to ensure that costs proposed for and incurred under the project comply with federal and NSF requirements.

In addition to the problems with the LSST proposal, an effort to audit the cost proposal for construction of the Daniel K. Inouye Solar Telescope (DKIST formerly ATST) resulted in a disclaimer of opinion due to significant deficiencies in the proposal, including unsupported estimates, outdated vendor quotes, and the inclusion of amounts for an unallowable contingency reserve. The auditors stated, “In summary, AURA did not support the material cost in their proposal using adequate cost or pricing data, they did not use actual costs in the rebaseline of the proposal when actual costs do exist, and they included costs that were explicitly unallowable per the OMB circular regulations.”

For four years, similar deficiencies have been documented in audits of AURA (the entity submitting the proposal to build the DKIST). This report confirms that AURA has not corrected these deficiencies or improved its proposal estimating practices. Because the proposed costs could not be affirmed as an acceptable basis for a fair and reasonable price, NSF can have no assurance that the proposal is an acceptable basis for funding. Further, the inadequacy of this cost estimate directly impacts the recipient’s ability to properly monitor and manage federal funds. The repeated estimating deficiencies demonstrate lack of improvement on the part of both AURA and NSF to exercise proper stewardship over the millions of dollars awarded for this project and heighten our concerns about unsupported costs being proposed and included in high-dollar, high-risk awards.

We have been urging NSF for the past four years to strengthen accountability of its high-dollar, high-risk cooperative agreements for its large facility construction projects. NSF applies its highest level of attention and scrutiny to determine the scientific merit of the projects it decides to fund. It is imperative that NSF apply the same rigorous attention and scrutiny to its financial management of these projects, prior to requesting NSB approval for award. The stakes are too high for the Foundation to continue its current practice of requesting NSB approval and making awards before it ensures that project costs are reasonable, are supported by adequate documentation, and will use taxpayer dollars efficiently.

**OIG’s Assessment of the Agency’s Progress:** NSF stated that it has published guidance on cost analysis of construction cost estimates and has drafted guidance on the use and management of contingency in large facility cooperative agreements. NSF also reported that it continues to review the risk management process for large facilities and that in FY 2014 it conducted four business system reviews of large facility awardees.

**CHALLENGE: Improving Grant Administration**

**Overview:** NSF’s mission of “promoting the progress of science” is accomplished largely through the making of grants in support of promising scientific research. In FY 2013, NSF competitively reviewed approximately 49,000 proposals for research, education and training projects, and funded close to 11,000 new awards. As of September 30, 2014, NSF had a portfolio of over 41,000 active awards totaling approximately \$36.6 billion. Since most of these awards

are grants, it is vital that NSF's grant management processes ensure that grantees spend their funds appropriately.

**Challenge for the Agency:** Ensuring that grant funds are spent as intended has always been challenging because grant recipients are not required to present supporting documentation, such as invoices and receipts, in order to receive payment from the agency. In addition, while recent efforts to reduce the administrative impact on grantees are worthwhile, care must be taken to ensure that accountability for public funds is not compromised in the process. Therefore, the challenge for NSF is implementing controls over the spending of grant funds that ensure transparency and accountability, while not creating undue administrative impacts on awardees and federal program officers.

One step federal agencies have taken to reduce such impacts on researchers is to streamline the written guidance for administering grants. While a reduction in extraneous guidance is welcome, we are concerned that some useful guidance has also been eliminated and will increase the risk that inconsistent interpretations and direction will be given to awardees. With scores of program officers overseeing thousands of awards and fielding questions from numerous awardees on a daily basis, NSF will be challenged to provide consistent messages across the spectrum of awardees and ensure its replies do not contradict each other or its written policies. OIG has observed several recent situations in which awardees individually have requested NSF's interpretation and direction on a particular issue, but the direction provided conflicted with NSF's published policy and/or prior informal guidance received from NSF personnel.

Recent changes to government-wide grants policy also presents challenges for NSF. On December 26, 2013, OMB issued its final rule, 2 CFR Part 200, "Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards" (Uniform Grant Guidance or UGG). The UGG streamlined eight OMB administrative, cost, and audit circulars into one circular that covers all types of non-Federal entities that receive Federal awards. However, as part of this initiative OMB raised the single audit threshold from \$500,000 to \$750,000. Using data for single audits of entity fiscal year 2012 (the most recent year with complete data), NSF will lose single audit visibility for approximately \$11.8 million in NSF funds provided directly to awardees, and will need to take additional steps to oversee the awardees who expend these funds.

In addition, OMB changed requirements related to documentation of labor effort, making it more challenging to assess the allowability of salaries and related costs on an ongoing basis. Under the UGG, colleges and universities are permitted to charge awards for salary costs based on budget estimates, rather than on the basis of actual work performed, provided only that "significant changes" are entered "in a timely manner" and that the final amount charged to the Federal award is accurate, allowable, and properly allocated. NSF faces the challenge of implementing OMB guidance over awardee spending for research salaries—generally the largest item of expense in research awards—that only requires awardees to ensure salary costs are reasonable at the end of an award.

Finally, OMB significantly shortened the audit resolution timeframe. Prior to the UGG, Federal agencies had 6 months to issue management decision letters on findings affecting the agency

from the time they received an audit report. The new OMB requirement allows 6 months from the date that *the report is submitted to the Federal Audit Clearinghouse*. For NSF, this change would effectively shorten the audit resolution timeframe by 30 days, unless the agency can establish a new accelerated process for identifying and tracking reports that require resolution.

**OIG's assessment of the Agency's Progress:** NSF recently issued a draft of the December 2014 "Proposal and Award Policies and Procedures Guide" (PAPPG), which, in conjunction with NSF's "Grant General Conditions" (GC-1), will serve as the agency's implementation of the UGG. Also, OIG and NSF have entered into discussions about possibly transferring responsibility for identifying single audit findings that require NSF resolution to NSF in FY 2015. Finally, NSF continues to use its Award Monitoring and Business Assistance Program (AMBAP) to provide advanced internal control monitoring of awardee institutions. During FY 2014, NSF planned and completed 30 AMBAP reviews.

### **CHALLENGE: Management of the U.S. Antarctic Program**

**Overview:** Antarctica is the coldest, driest, windiest, most remote continent on earth. The weather changes frequently and abruptly; temperature drops of as much as 65 degrees F in twelve minutes have been recorded.

NSF, through the United States Antarctic Program (USAP), manages U.S. scientific research in Antarctica. The program's goals are: to understand the Antarctica and its associated ecosystems; to understand the region's effects on, and responses to global processes such as climate; and to use Antarctica's unique features for scientific research that cannot be done as well elsewhere. The USAP supports research in virtually every area of science funded not only through NSF, but also through other federal agencies such as the U.S. Geological Survey, the National Oceanic and Atmospheric Administration, and the National Aeronautics and Space Administration. The Antarctic Support Contract, which was awarded to Lockheed Martin in December 2011 is NSF's largest contract, valued at nearly \$2 billion over 13 years.

**Challenge for the Agency:** Establishing and maintaining a world-class scientific research program in Antarctica's remote and harsh environment is a formidable logistical challenge. The July 2012 report by the Blue Ribbon Panel, commissioned by NSF and the Office of Science and Technology Policy, found that U.S. activities in Antarctica were well-managed, but suffered from an aging infrastructure, lack of a capital budget, and the effects of operating in an extremely unforgiving environment. To address these pressing challenges, the Panel made recommendations pertaining to ten topic areas and provided 84 implementing actions to support these overarching recommendations.

In March 2013, NSF responded to the recommendations with a summary report and a working matrix describing the status of the 84 implementing actions. In June 2013, we issued a memorandum to NSF making several suggestions to improve the usefulness of its working matrix, such as including timelines for action and identifying a responsible person for each action. NSF has been tracking progress in its working matrix and has improved that document.

In May 2014 we began an audit to assess the effectiveness of NSF's oversight and the contractor's performance to ensure the overall health and safety of USAP participants. The audit will include an assessment of health and safety programs and related policy, procedures and training, the adequacy of incident reporting, and NSF's progress toward implementing Blue Ribbon Panel recommendations related to health and safety. It is noteworthy, however, that more than three years after the Panel's report, NSF has not provided a public, point-by-point response to the Panel's recommendations.

Another challenge for NSF is to control the cost of the USAP and to ensure adequate oversight of payments to the USAP contractor. Our 2013 audit of the medical screening process for travelers to Antarctica found that NSF's medical review panel has made recommendations that could reduce the cost of this process, but NSF has not implemented many of these recommendations. For example, for the last five years the panel recommended that NSF base required medical tests on factors such as how long an individual will be in Antarctica, and what their duty station and job responsibilities will be. Revising the number of medical tests performed to reflect these criteria could lower costs of the screening process, which currently totals approximately \$860 per person.

Finally, cost containment issues are also a challenge for NSF. The Antarctic Support Contract, which was awarded to Lockheed Martin in December 2011 is the agency's largest contract, valued at approximately \$1.925 billion over 13 years, and is a cost reimbursement contract. Such contracts are inherently risky because the government assumes much of the risk that poor performance on the part of the contractor will result in cost overruns. In addition, the contract includes a provision for the contractor to receive an award fee based on an assessment of its performance. An NSF official in the Division of Polar Programs makes the final decision about whether the contractor receives an award fee and then also determines the amount of the award fee based on a panel recommendation. Absent input from an external, independent entity, it may be a challenge for NSF to objectively evaluate the contractor's performance.

**OIG's Assessment of the Agency's Progress:** NSF's has improved its internal tracking matrix for the 84 implementing actions, by adding target dates and identifying a responsible person for each action, among other things.

In response to our audit on reducing costs of the medical screening process, NSF concurred with the OIG's recommendations and has formalized its process for addressing and tracking medical panel recommendations.

### **CHALLENGE: Moving NSF Headquarters to a New Building**

**Overview:** In June 2013, the U.S. General Services Administration (GSA) announced that it signed a 15 year lease agreement on behalf of NSF for a new headquarters building to be constructed in Alexandria, VA. The new building will be approximately the same size as NSF's current location. NSF is scheduled to occupy the new building by December 30, 2016, and begin paying rent on it on January 1, 2017. Any delays in the occupancy date caused by NSF could have a significant cost to NSF.

**Challenge for the Agency:** The OIG issued an Alert Memo in September 2014, which expressed strong concern about missed schedule milestone dates that have occurred already and which could continue as a result of an ongoing impasse between NSF and its union. NSF received the Union's written opposition to certain issues in September 2013, but these issues have not been resolved despite multiple mediation sessions and other attempts to address concerns.

The Union filed a Request for Assistance with the Federal Labor Relations Authority's Federal Service Impasses Panel (FSIP) in June 2014. Depending on the FSIP's decision, (which is binding) NSF could incur additional schedule delays. If delays like this continue and cannot be mitigated, they could result in significant charges to the agency because NSF may have to pay certain costs (which have yet to be negotiated) for every day it causes the occupancy date to be delayed. Due to the significant risks of continued impasse, it is imperative that NSF senior management focus the highest level of attention on this issue.

Continued missed milestone dates are likely to impact other schedule milestones, such as the interior construction and occupancy date. While NSF has told us that it may be able to make up lost time it is difficult to know how much continued schedule slippage can be mitigated.

Another challenge is planning the logistics of the actual move. NSF stated that computers, chairs, and tables will be moved to the new building and that its primary cost will be for workstation furniture that cannot be moved. NSF will need to procure new workstation furniture in a timely manner and tightly control moving expenses for the items it moves from Arlington. NSF is considering different options and there may be a period of time when it is operating in both buildings, which could be a challenge for holding merit review panels, which are essential to NSF's mission of awarding grants for scientific research.

**OIG's Assessment of the Agency's Progress:** NSF has been planning for a possible move since 2008, when it hired a project director. NSF created the Future NSF Headquarters Office (FNSF) to coordinate and manage the move. The FNSF's project director assisted with NSF's last move in 1993 from Washington DC to Arlington. NSF reported that it has held more than 80 staff design review meetings to ensure the timely response to design submittals, in accordance with the lease requirement. In addition, NSF informed us that it plans to negotiate a construction delivery schedule that minimizes the financial risk to NSF.

### **CHALLENGE: Managing Programs and Resources in Times of Budget Austerity**

**Overview:** Given the limitations placed on future Federal budgets by the Budget Control Act of 2011, NSF's efforts to maintain and possibly increase its funding will be subject to great scrutiny. Lean budget times like these require management to pay even closer attention to how money is spent in order to ensure that the agency's expenditures are cost-effective, investments in programs provide a strong return on the taxpayer's dollars, and that those investments align directly with national priorities.

There are numerous discretionary purchases that occur on a weekly or monthly basis within an organization as large as NSF that offer real opportunities for savings. For example, OIG

completed an audit of purchase cards and found that NSF's controls over the purchase card program needed to be strengthened to prevent and detect inappropriate purchases. Prompted by suspicious purchases identified by its auditors, OIG conducted an investigation which led to the cardholder pleading guilty to stealing more than \$94,000 from NSF. In response to the audit's recommendations, NSF issued a revised purchase card policy, implemented improved training for cardholders, and improved its review and monitoring of purchase card transactions.

OIG's audit of the United States Antarctic Program's Medical Screening Process determined that NSF should consider opportunities that exist for cost savings on medical screenings. OIG found that nearly 20 percent of applicants withdraw each year before completing the medical screening process, representing a significant amount of time and effort for staff as well as incurring medical examination costs. This OIG audit also found that NSF needs to improve oversight of Antarctic support contract medical processing payments, due to a risk that applicants may submit claims for expenses that are not eligible for reimbursement, and that the contractor may submit inaccurate invoices for medical costs to NSF. The OIG will continue to perform reviews or audits to identify possible cost savings of NSF operations and programs..

**Challenge for the Agency:** There are many opportunities to conserve money within a \$7 billion organization like NSF without compromising the accomplishment of the agency's core mission. The agency is therefore challenged to identify opportunities to streamline administrative processes and cut costs where it can to send a clear message to its employees and stakeholders that strong, sound management controls are being applied; reasonable ideas to reduce spending are welcome and will be implemented; and that NSF is a responsible steward of the public's funds.

**OIG's Assessment of the Agency's Progress:** NSF continues to make progress in identifying ways to reduce administrative costs during FYs 2013 and 2014. To instill an agency-wide culture of cost-saving, NSF encouraged staff to submit ideas for cost savings. NSF management concurred with OIG's audit recommendations to improve controls over purchase cards and consider opportunities for cost saving for United States Antarctic Program's Medical Screening Process. The agency has also introduced or continues to implement specific cost cutting initiatives for travel, conferences, printing, mobile devices, and telecommunications. NSF has been reducing travel costs by further increasing the use of virtual merit review panels and encouraging the use of non-refundable tickets for staff travel.

### **Challenge: Encouraging the Ethical Conduct of Research**

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

However, information collected during investigations, from site visits, and from reviews of institutional RCR plans suggests that some institutions are not taking these requirements



seriously. Furthermore, the findings of research funded by NSF's Ethics Education in Science and Engineering Program suggests that many of the ethics training programs currently available provide limited positive effect on the perspectives of students and postdocs regarding the ethical conduct of research. This potentially compromises the public's confidence in the research enterprise and affects the safety of NSF funds. NSF is challenged to provide more oversight on institutional implementation of these requirements and to provide meaningful guidance regarding RCR training.

**Challenge for the agency:** NSF's primary challenge is to ensure that awardees implement effective RCR programs. RCR is just one component necessary to create a culture of academic integrity that extends to all levels of the university. At a time when opinion surveys indicate that more Americans are becoming distrustful of science, it is important that the conduct of scientific research not be tainted by instances of misrepresentation or cheating. Affirmative steps are necessary to counter the trends of increasing integrity-related violations. Recent surveys suggest that cheating is endemic at various levels of education, with 30% of researchers admitting to engaging in questionable research practices. Consistent with these survey results, OIG has seen a dramatic increase in substantive allegations of plagiarism and data fabrication, especially as it relates to junior faculty members and graduate students. Over the past 10 years, the number of allegations received by our office has more than doubled, as have the number of findings of research misconduct NSF has made based on OIG investigation reports. In addition, OIG has seen a substantial increase of allegations related to: peer-review based confidentiality violations, false representations in CVs, false representations of publications in annual/final reports, failure to list all affiliations and current support (especially at overseas institutions), and fraudulent or otherwise improper use of grant funds. The number and variety of ethical issues identified in our investigative activities strongly suggest that the general ethical fabric of the research enterprise may be at risk – not only at the student level but at the faculty level as well.

Only 10% of the science and engineering workforce hold PhD's. For this reason, the NSF Act places responsibility on NSF to "strengthen scientific [and engineering] research potential at all levels in ... various fields." NSF's research and training programs reach individuals who are ultimately employed by academia, industry, and government; these individuals could have a broad and positive impact on the US science, engineering and education workforce. NSF has been responsive to recommended actions contained in our individual research misconduct investigation reports. However, such agency actions only address incidents after the fact. Extrapolation of the number of allegations OIG has received across the 45,000 proposals NSF receives annually, suggests that 1300 proposals could contain plagiarism and 450-900 proposals could contain falsified data. Since NSF funds research in virtually every non-medical research discipline, the agency is in a unique position to lead the government response to these disturbing trends at all levels of education.

**OIG's Assessment of the Agency's Progress:** The agency responded to the America COMPETES Act by creating a requirement that grantees submit mentoring plans for all NSF-supported postdoctoral positions and provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate students, graduate students, and postdoctoral researchers participating in the proposed research project.

The NSF guidance is very limited compared with those instituted at NIH in 2010. OIG has observed a wide disparity among grantee RCR programs, ranging from high quality mentoring programs to programs that simply refer students to web-based or computer-based training. Early intervention remains critical to any effort to ensure that students understand proper professional practices and the implications of misconduct. We continue to receive substantive data fabrication/falsification allegations involving students, post-docs, and faculty. We currently have 24 active investigations regarding such allegations. Therefore, we believe that more needs to be done and NSF should expand its influence with institutions regarding this important issue. OIG has developed a plan to systematically review RCR plans that were initiated as a result of the America COMPETES Act. We have requested RCR plan details from 50 random grantee institutions and hope to complete that review in the near future.

Other actions the agency has taken include the development of a new ethics research program called Cultivating Cultures for Ethical STEM (CCE STEM). The CCE STEM research effort is focused on identifying the factors that create climates that foster and encourage research integrity rather than focusing on curriculum development on integrity issues. The Agency is also working with the National Academies to develop and make available ethics materials that will be applicable across all scientific fields that NSF supports.

NATIONAL SCIENCE FOUNDATION  
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OFFICE OF THE  
DIRECTOR

NOV -5 2014

MEMORANDUM

TO: Ms. Allison Lerner  
Inspector General, National Science Foundation

FROM: Dr. France Córdova   
Director, National Science Foundation

SUBJECT: Acknowledgement of the Inspector General's FY2015 Management Challenges Memorandum and Transmittal of NSF's Progress Report on the FY2014 Management Challenges

This serves to acknowledge receipt of your memorandum dated October 23, 2014, summarizing what the Office of Inspector General (OIG) considers to be the most serious management and performance challenges facing the National Science Foundation (NSF). These challenges include the following ongoing responsibilities: establishing accountability over large cooperative agreements; improving grant administration; managing the U.S. Antarctic program; moving NSF headquarters to a new building; managing programs and resources in times of budget austerity; and encouraging the ethical conduct of research.

Your memorandum has already been shared with the Foundation's executive and senior officers, and, as in past years, senior leadership will ensure continuing and collaborative, cross-agency communication and attention to addressing these issues. NSF's progress report that highlights the significant actions taken in FY2014 on the management challenges outlined in your November 5, 2013 memorandum is attached. The report also provides anticipated next steps, which will serve as a prospective guide for many of the actions planned for FY2015.

As always, the Foundation remains committed to serving the research community effectively, to continually improve stewardship across the agency, and to safeguard federal funds awarded by NSF in support of the mission. We look forward to continuing to work with your office to achieve these goals.

Attachment

cc: Chair, National Science Board  
Chair, National Science Board, Audit and Oversight Committee

## National Science Foundation (NSF) Fiscal Year (FY) 2014 Progress Report on OIG Management Challenges

### CHALLENGE: Establishing Accountability over Large Cooperative Agreements

**NSF Overview:** This Office of Inspector General (OIG) challenge relates to NSF’s use of cooperative agreements to construct and fund the operations and maintenance of large research facilities. The Foundation currently utilizes end-to-end cost surveillance policies and procedures for its cooperative agreements to ensure adequate stewardship over federal funds. These activities are carried out via the decisional and governing responsibilities of the Office of the Director and the National Science Board, respectively, and through the management and oversight responsibilities of the sponsoring Science and Engineering Directorates and Offices and the NSF Chief Financial Officer (CFO), Office of Budget, Finance and Award Management (BFA). Additionally, the Major Research Equipment and Facility Construction (MREFC) Panel, comprised of NSF Senior Management representatives from across the agency, provides governance of the overall MREFC process, reviews specific cases as presented by the originating program office, and defines the specific implementation processes utilized by NSF to oversee, assess, prioritize, and fund major research infrastructure projects that utilize the MREFC account. Within BFA, the CFO relies on the Large Facilities Office (LFO) to develop policy related to large facilities, to advise NSF management on large facility issues, and to coordinate with and advise program offices on large facility management and oversight. Other BFA units, including the Budget Division (BD) and the Acquisition and Cooperative Support Division’s Cooperative Support Branch (DACS/CSB), are engaged in budget and award development and monitoring related to large facilities. NSF is currently implementing enhancements to its pre-award and post-award budget and cost review processes for large research facility cooperative agreements to include additional analysis of awardee proposal budget information and the utilization of incurred cost audits, to the extent appropriate, to strengthen the review of billed costs. These strengthened procedures include a mandatory requirement for independent assessment of potential awardee’s proposed cost estimates that will be performed separately from internal reviews conducted by the cognizant NSF project office or the current independent panel review process coordinated through the cognizant project office.

a. *Ensure proper accountability for large cooperative agreements by strengthening pre- and post-award monitoring and cost surveillance policies and procedures.*

**NSF’s Significant Actions Taken in FY 2014:**

- Completed the audit resolution escalation process addressing the agency’s proposed corrective actions in response to two outstanding OIG reports: NSF OIG Alert Memo (Report No. 12-6-001) on NSF’s Management of Cooperative Agreements, and Audit of NSF’s Management of Contingency in the EarthScope Awards (Report No. 12-2-010).
- Published Standard Operating Guidance for accomplishing cost analysis of construction cost estimates and use of audit services in awarding and administering large facility related cooperative agreements as set forth in Corrective Action Plans (CAPs) for the aforementioned audit reports.
- Drafted guidance on the use and management of contingency in large facility related cooperative agreement to be incorporated into the next revision of the Large Facilities Manual in FY 2015.

**NSF’s Anticipated Next Steps:**

- Complete the clearance process (including public comment) and publish the revised Large Facilities Manual that includes guidance on the use and management of contingency in large facility related cooperative agreements.
- Draft standards for the preparation of construction cost estimates by recipients for publication in a subsequent revision of the Large Facilities Manual.

**Appendix 3B: NSF FY 2014 Progress Report on OIG Management Challenges**

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|   | <ul style="list-style-type: none"> <li>• Implement the Standard Operating Guidance for accomplishing cost analysis of construction cost estimates and use of audit services.</li> <li>• Draft a standardized analysis plan for the cost analysis of facility operation cost estimates.</li> </ul>  |
| <p><i>b. Improve oversight and management for contingency costs in large facilities construction awards.</i></p>  | <p><b>NSF’s Significant Actions Taken in FY 2014:</b></p> <ul style="list-style-type: none"> <li>• Continued to ensure that awardees of large construction projects were managing their risks and properly accounting for contingency by reviewing the project’s risk management process, monitoring the allocation of contingency to mitigate risk, and addressing resolution tasks in the project’s monthly report.</li> <li>• Continued to assess compliance performance of large facility awardees by conducting four Business System Reviews (BSRs) and related post-BSR monitoring activities.</li> <li>• Drafted guidance on the use and management of contingency in large facility related cooperative agreement to be incorporated into the next revision of the Large Facilities Manual in FY 2015.</li> </ul> <hr/> <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Continue review by LFO and program offices of contingency allocation and accounting through monthly reports and yearly progress reviews.</li> <li>• Provide training by LFO to facility program officers on risk management and the appropriate allocation and accounting of contingency for MREFC projects.</li> <li>• Continue BSR activities.</li> <li>• Complete the clearance process (including public comment) and publish the revised Large Facilities Manual that includes guidance on the use and management of contingency in large facility related cooperative agreements.</li> </ul> |
| <p><i>c. Establish a clear threshold above which it would require price proposal and accounting systems audits prior to awarding new high-dollar, high-risk cooperative agreements.</i></p> | <p><b>NSF’s Significant Actions Taken in FY 2014:</b></p> <ul style="list-style-type: none"> <li>• Published standard operating guidance setting forth a risk-based approach to determining the need for audit services prior to awarding large facility related cooperative agreements.</li> </ul> <hr/> <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Implement the aforementioned standard operating guidance.</li> </ul>   |

**CHALLENGE: Improving Grant Administration**

**NSF Overview:** NSF manages awards throughout the project life cycle from pre-award through closeout. In mid-FY 2014, NSF was managing 41,425 active awards, representing \$27.6 billion in obligated funds to 2,988 unique awardees. NSF policies, business practices, and information technology (IT) systems requisite to ensure accountability constantly evolve to align with changes in federal regulations, legislative mandates, and agency-specific requirements. During FY 2014, NSF made significant technology upgrades to strengthen its business infrastructure. Implementation of the Award Cash Management Service (ACMS), NSF’s new

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| <p>awardee payment process, has enabled the Agency to obtain award-specific expenditure data based on near real-time cash transactions. Progress was made on implementation of iTRAK, a modernization of NSF’s 30-year old financial system. Scheduled for implementation in early FY 2015, iTRAK will provide increased transparency and capacity for processing and reporting data needed for decision-making and oversight. NSF continues to capitalize on technology to address increasing accountability demands within the constraints of resource limitations. In FY 2014, NSF added a new IT tool that provides stakeholders – both internal and external to NSF – the ability to identify over-age reports of scientific progress. This is important because being out of compliance with deadlines stated in award terms and conditions would otherwise effectively block further NSF funding actions to any associated Principal Investigator (PI) and co-PIs. In FY 2014, NSF also continued to play an instrumental role on the Office of Management and Budget (OMB) Council of Financial Assistance Reform (COFAR) in supporting OMB’s development and publication of the <i>Uniform Guidance: Cost Principles, Audit, and Administrative Requirements for Federal Awards</i> that will be fully implemented via NSF policy guidance and associated terms and conditions to meet the December 26, 2014 deadline. This past year, NSF and its Office of the Inspector General have worked collaboratively to bring common understanding to, and clarity around roles and responsibilities, in the use of data analytics for audits and audit resolution. Finally, NSF continues to expand and upgrade mechanisms for communicating policies, procedures, and business practices within this dynamic environment to its staff and external stakeholder communities.</p> |  |
| <p>a. <i>Improve internal controls over processing grant transactions and follow-up on awardee corrective action plans.</i></p>  | <p><b>NSF’s Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>Initiated streamlined processes for “Do Not Pay” results and improve implementation of internal controls in place to identify grantees that require corrective action plan follow-up.</li> </ul>   |
|  | <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>Ensure that awards meet Do Not Pay requirements and continue to utilize the internal controls in place to assist in the monitoring of corrective action plan follow-up.</li> </ul>   |
| <p>b. <i>Due to Uniform Guidance changes increasing Single Audit threshold from \$500,000 to \$750,000, NSF will have to do more to ensure appropriate oversight of awards from \$500,000 to \$750,000 as they will no longer be subject to Single Audits.</i></p>   | <p><b>NSF’s Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>Evaluated impact of <i>Uniform Guidance</i> to ensure full agency support for its objectives of effectively focusing federal resources on performance and outcomes while simultaneously ensuring financial integrity of taxpayer dollars (reduction in the risk of waste, fraud, and abuse) and reducing administrative burden for non-federal entities receiving federal awards.</li> <li>Initiated upgrading of all relevant policies, procedures, and award terms and conditions, as well as development of Frequently Asked Questions so as to position NSF for effective and timely implementation of the <i>Uniform Guidance</i> by the December 26, 2014 deadline.</li> </ul> |
|  | <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>Ensure that the NSF audit resolution process fully aligns with the <i>Uniform Guidance</i>, including its strengthened provisions for risk-based oversight.</li> <li>Continue to strengthen the NSF annual risk assessment of awards and institutions to ensure appropriate levels of oversight across its entire investment portfolio.</li> </ul>   |
| <p>c. <i>Due to Uniform Guidance changes in labor effort reporting, it</i></p>   | <p><b>NSF’s Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>Evaluated impact of the <i>Uniform Guidance</i> to ensure full agency support for its objectives of effectively focusing federal resources on performance and outcomes while simultaneously ensuring financial integrity of taxpayer dollars (reduction in the risk of waste,</li> </ul>   |

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| <p><i>may be more difficult to determine the allowability of salaries and related costs. Collectively, these changes may increase workload for BFA Staff.</i></p>  | <p>fraud, and abuse) and reducing administrative burden for non-federal entities receiving federal awards.</p> <ul style="list-style-type: none"> <li>Initiated upgrading of all relevant policies, procedures, and award terms and conditions, as well as development of Frequently Asked Questions so as to position NSF for effective and timely implementation of the <i>Uniform Guidance</i> by the December 26, 2014 deadline.</li> </ul> <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>Continue a strong program of oversight ensuring that NSF awardees have implemented relevant policies, procedures, and systems to adequately document salaries, wages, and related costs.</li> </ul>   |
| <p><b>CHALLENGE: Strengthening Contract Administration</b></p> <p><b>NSF Overview:</b> Contract administration remains a critical function for NSF. As such, the Foundation continues to take a comprehensive approach to continue improvement in this area. NSF took steps to strengthen contract administration through policy and procedural initiatives. Specifically, NSF (1) added guidance to the NSF Acquisition Manual concerning the performance and procurement of Pre- and Post- Award Audits; (2) outlined a plan for resolving the audit findings to date on the former U.S. Antarctic Program (USAP) contract; (3) continued to implement the controls established under the NSF Acquisition Manual concerning incurred cost audits (ICAs), disclosure statements and accounting systems; and (4) published an article in the Weekly Wire on the importance of using the correct Object Class Codes when completing and submitting funding commitments.</p> |   |
| <p>a. <i>Strengthen controls over cost reimbursement contracts in order to reduce the risk of fraud, waste and abuse.</i></p>  | <p><b>NSF’s Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>Ensured that all accounting systems and Cost Accounting Standards (CAS) Disclosure Statements are determined adequate for all covered contracts.</li> <li>Actively pursued audit completion for required CAS Disclosure Statements.</li> <li>Promptly reviewed and resolved any issues raised in such audits.</li> <li>Reviewed the new USAP contractor’s transfer of the NSF contract to a different segment within the company and determined that it did not affect the NSF cost.</li> </ul> <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>Continue to implement the controls established in the NSF Acquisition Manual concerning incurred cost audits.</li> <li>Continue to ensure, through the implemented controls established in the NSF Acquisition Manual, that all accounting systems and Cost Accounting Standards (CAS) Disclosure Statements are determined adequate for all covered contracts.</li> <li>Continue to ensure that supporting documentation is contained in the contract file for all new contracts, as appropriate.</li> </ul> |
| <p>b. <i>Implement planned corrective actions to ensure that adequate controls over cost reimbursement contracts are</i></p>   | <p><b>NSF’s Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>Added additional guidance to the NSF Acquisition Manual (see Section 2515.404) that Pre- and Post-Award Audits performed on NSF contracts shall be consistent with the terms of the Memorandum of Understanding with NSF-OIG</li> <li>Established a process to follow in the NSF Acquisition Manual (see Section 2542.101-70) whereby Contracting Officers may request funding of audits through the program office or other identified sources if the OIG does not select an audit candidate through the</li> </ul>  |



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| <p><i>maintained.</i></p> | <p>Annual Audit Planning Process, or, if there is an urgent situation requiring immediate audit.</p> <ul style="list-style-type: none"> <li>• Included a link in the NSF Acquisition Manual (see Section 2510) to the updated NSF Standard Procurement Lead-times and Milestones which now includes information and guidance on the front end of the acquisition process covering Market Research and Requirements Development.</li> <li>• Prepared “white papers” that outline NSF’s plan for resolving the audit findings to date on the Raytheon Antarctic Logistics Support Contract (RTSC Polar).</li> </ul> |
|                           | <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Continue review of the recently received audits of the final years of the RTSC Polar contract from the Defense Contract Audit Agency (DCAA).</li> <li>• Continue resolution of the RTSC questioned costs throughout CY 2015.</li> </ul>   |

**CHALLENGE: Management of the U.S. Antarctic Program**

**NSF Overview:** Through the Division of Polar Programs NSF funds and manages the U.S. Antarctic Program (USAP) which supports United States’ research and national policy goals in the Antarctic. Given the remote location, an extreme environment and the short period of time during which the continent is accessible, significant challenges exist for ensuring the availability of necessary logistics, operations and science support. There are also unique and internationally-linked environmental, health and safety issues present at the remote location. In exercising its management responsibilities, NSF relies on internal staff with the requisite expertise as well as a network of contracted support and federal agency partners. Periodically, the Program is reviewed by external panels of experts.

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| <p><i>Work toward implementation of the 2012 U.S. Antarctic Program Blue Ribbon Panel Report recommendations in a well-organized and structured manner, and improve the structure of the internal management matrix for tracking agency action on individual recommendations.</i></p> | <p><b>NSF’s Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>• Implemented OIG-recommended changes to the internal tracking matrix for Blue Ribbon Panel (BRP) recommendations and provided status updates regarding progress and feasibility of implementation.</li> <li>• Received authorization from NSF Director to proceed to conceptual design review (CDR) phase for development of Antarctic Infrastructure Modernization for Science (AIMS), a potential Major Research Equipment and Facilities Construction (MREFC) project to address major infrastructure upgrades recommended by the BRP report for McMurdo and Palmer Stations.</li> </ul> <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Continue progress on BRP recommendations, including investment in prioritized lifecycle acquisitions.</li> <li>• Transition AIMS project from CDR phase to PDR (preliminary design review) phase.</li> </ul> |
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**CHALLENGE: Moving NSF Headquarters to a New Building**

**NSF Overview:** In April 2013, capping off five years of planning, economic challenges and negotiations, the House Committee on Transportation and Infrastructure authorized, through a GSA prospectus resolution, a new long term replacement lease for NSF. GSA’s competitive action for the lease was limited to Northern Virginia which resulted from three Expressions of Interest (EOI) advertisements. Using a low cost-technically acceptable procurement approach, the award was made to the Hoffman Company of Alexandria, Virginia in June 2013 and included a pre-designed, to-be-constructed office building to be completed and occupied by NSF in the first quarter of FY 2017 (12/30/2016). The new lease offered financial terms that demonstrated significant savings (approximately \$65million) to the government and to NSF over the life of the lease, and was less costly than maintaining NSF in its current location. NSF’s existing leases were extended for 48

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| <p>months (at a premium) beyond their original expiration to accommodate the time required to design, build, and relocate the agency. Immediately after the new lease signing, NSF embarked on a wide-ranging set of efforts with GSA, the new building owner (Hoffman) and internal NSF stakeholders to ensure NSF could meet the aggressive relocation schedule. The new HQ building lease transferred ownership to USAA Realco, Inc. in April 2014 who, along with their development manager, Lowe Enterprises, is working collaboratively with GSA and NSF to formulate schedule strategies that address NSF's relocation objectives.</p> |  |
| <p>a. <i>To complete the scheduled move before December 30, 2017.</i></p>   | <p><b>NSF's Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>• Managed design and engineering tasks in concert with GSA and the building owner to pursue NSF's move completion by the lease date of December 30, 2016, despite unforeseen hurdles.</li> <li>• Held over 80 NSF staff design review meetings to ensure the timely response to design submittals per the lease requirement.</li> <li>• Conducted two NSF relocation workshops and three NSF/GSA/Owner strategy sessions to begin establishing the baseline criteria and priorities for the move and align them with the construction completion schedules in the lease.</li> </ul>  |
|   | <p><b>NSF's Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Work with GSA and new headquarters ownership project construction team to re-assess the building delivery (to the government) approach in the lease.</li> <li>• Negotiate a construction delivery schedule that minimizes the financial risk to NSF.</li> <li>• Complete procurement preparation activities (resourcing and scope definitions) by all stakeholders by December 2015.</li> <li>• Coordinate and oversee the completion of the re-design for NSF's new space by May 2015.</li> </ul>   |
| <p>b. <i>Plan and manage the details of NSF's space requirements and relocation.</i></p>  | <p><b>NSF's Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>• Completed an exhaustive update of NSF's two-year old Program of Requirements for the design of NSF's new space, inclusive of comprehensive information technology and electronic security specifications, furniture and equipment inventory and reuse analysis, and a paper records/files analysis.</li> <li>• Conducted typical floor studies and worked with the Architect of Record (AOR) on test fits of the new building to determine the efficiency of the new space.</li> <li>• Assisted in the analysis, design and engineering development of upgrades to the owner's base building to meet Department of Homeland Security, Interagency Security Committee requirements for NSF.</li> <li>• Developed design recommendations, comparative analyses and justification to incorporate flexible, modular wall technology into the new NSF headquarters space.</li> <li>• Modified the Program of Requirements to be more consistent with the interests expressed by both NSF management and AFGE Local 3403.</li> </ul> |
|   | <p><b>NSF's Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Continue to work with each directorate, NSF leadership and the American Federation of Government Employees (AFGE) Local 3403 to implement NSF's updated design. Oversee design completion and building planning and relocation efforts consistent with those program requirements.</li> </ul>  |

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| <p><i>c. Control moving expenses tightly to plan for a successful move if there are no additional funds to cover moving costs.</i></p> | <p><b>NSF’s Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>• Ensured that effective working relationships and communications with NSF were established early in the process with all of the new headquarters stakeholders (GSA, City of Alexandria, Owner’s Architect/Engineering and Construction teams, others). Doing so has positioned NSF to protect and coordinate our time-sensitive mission interests impacted by the relocation, and to better manage early change requirements, mitigating potentially costly financial, schedule, design impacts later down the line.</li> <li>• Worked closely with GSA contracting officials and GSA management, the owner and internal NSF on analyzing and interpreting the terms, conditions and financial structure of the lease deal to maximize how they could be applied to the NSF-responsible portions of the design and construction.</li> <li>• Assisted GSA in transferring information and processes between the original leaseholder and a new owner and development team. Ensured that the NSF-related funding and framework in the lease was clearly discussed by the appropriate project stakeholders.</li> <li>• Educated internal NSF stakeholders on the project’s organizational structure, base building and interior design and construction processes and schedule to obtain a greater understanding of where to implement internal tracking and controls for the project.</li> <li>• Closely managed the design phase submittals and out-of-sequence design activities with the AOR during periods of paused activity. Worked with GSA to orchestrate reengagement work to minimize the cost of potential delays and additional moving costs.</li> </ul> |
|  | <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Provide expert advice for negotiating with the AFGE Local 3403 that aligns with the estimated budget for the move.</li> <li>• To the extent possible, identify potential move-related cost-impacts during early relocation planning in FY15.</li> <li>• Mitigate costly change orders and additional fees of NSF move-related procurements by managing them in close alignment of GSA and the lessors’ space delivery and move-in schedules.</li> </ul>   |
| <p><i>d. Plan for dual operations in Arlington and Alexandria.</i></p>   | <p><b>NSF’s Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>• Conducted two relocation planning meetings with NSF’s operational units including information technology, facilities, meeting services and human resources management. The initial assumptions upon which dual operations will be determined have been identified and will be analyzed for recommendations to NSF senior Management by Q2 FY 2015.</li> </ul>   |
|  | <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Conduct monthly move planning meetings beginning Q1 2015.</li> <li>• Manage FY 2015 relocation-related procurement activities; ensure that the FY 2016 procurement and budget schedules support and align with the projected relocation timeline.</li> <li>• Complete the collection of FY 2017 panel meeting projections in order to discuss and propose final relocation/move operations approach by Q3, 2015.</li> </ul>   |

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| <p><i>e. Collaborate and communicate internally within NSF and with external stakeholders, including GSA, the Alexandria building owner, Congress and OMB.</i></p> | <p><b>NSF’s Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>• Educated and engaged internal NSF stakeholders about the new headquarters as information presented itself. Also implemented a governance, evaluation and recommendation structure for efficient decision-making involving senior executive staff, liaisons for each directorate and a cross functional/organizational group.</li> <li>• Participated in monthly Alexandria City Economic Development Partnership Board of Directors meetings to represent and address NSF’s interests in the city’s planning process.</li> <li>• Attended City of Alexandria permit and review board meetings with the AOR and project developer.</li> <li>• Resumed regular meetings with the AFGE Local 3403 on project information, pre-decisional items as well as impact and implementation issues. Worked with the NSF LRO and the AFGE throughout FY 2014 to collaborate with and respond to the AFGE’s issues about the planning for the new building.</li> <li>• Participated in extensive mediation and formal negotiation activities and responded to inquiries from the Federal Labor Relations Board, Federal Services Impasse Panel (FSIP).</li> </ul> |
|  | <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Implement an enhanced communications and outreach program to NSF staff and other stakeholders in Q1 2015.</li> <li>• Continue site tours, City participation, discussions with Washington Area Transportation Authority, US Patent and Trademark Office and new building area stakeholders.</li> </ul>   |

**CHALLENGE: Managing Programs and Resources in Times of Budget Austerity**

**NSF Overview:** Across the board, NSF has made significant progress towards reducing certain administrative costs by identifying and implementing efficiencies, by prioritizing work, by eliminating or scaling back the scope of some activities, and by exploring new ways of getting the job done. Travel costs have been reduced by 32 percent below the FY 2010 baseline. Efforts are underway to streamline how NSF procures and utilizes telecommunications services (including mobile devices). NSF has also reduced the cost of light refreshments in support of conferences and panels.

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| <p><i>Identify opportunities to streamline processes and cut costs where it can in order to send a clear message to its employees and stakeholders that strong, sound management practices are being applied, reasonable ideas to reduce spending are welcome and will be acted upon, and at a time of hardship for so</i></p> | <p><b>NSF’s Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>• Merit Review Business Practice             <ul style="list-style-type: none"> <li>○ By investing in expanded training for panel moderators and providing other technical and human resources to support the use of virtual meeting technology on a larger scale, in 2014 NSF was able to further expand its use of virtual panels as a review mechanism for small groups of proposals. From the results to-date, it is projected that at least 15 percent of proposals competitively reviewed in FY 2014 will be reviewed by virtual panels instead of face-to-face panels or purely ad hoc review. Benefits realized have included a reduction in the average time commitment necessary from individual panel reviewers and a reduction in NSF’s expenditure on panelists’ travel.</li> <li>○ The Graduate Research Fellowship Program switched from using in-person panels to virtual panels for its annual review of fellowship applications. This replaced a process that in FY 2013 brought approximately 800 reviewers to DC for in-person panels, held simultaneously in a hotel conference venue, with virtual meetings that collectively involved 1200 reviewers. Although this required increased expenditures on DIS and DAS staff support, these were offset by savings in travel costs. The virtual meeting approach also made it possible for more reviewers to participate and enabled the program to raise the</li> </ul> </li> </ul> |
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| <p><i>many, the public's continued financial support for science is not taken for granted.</i></p> | <p>minimum number of reviews per application from the two to three.</p> <ul style="list-style-type: none"> <li>• Travel: Instituted FY 2014 travel targets (December 2013) to promote and monitor achievement of the \$3.9 million reduction goal established in response to OMB Memorandum M-12-12; which requires that agencies must maintain the reduced level of travel spending each year through FY 2016. To date in FY 2014, NSF has realized savings totaling \$8.4 million—reductions of 32 percent below FY 2010 travel obligations. Savings have been achieved across most travel categories, but the key driver is reduced travel costs associated with merit review panels.             <ul style="list-style-type: none"> <li>○ NSF held 3.13 percent of merit review panels wholly virtually through third quarter of FY 2014. As a result, comparing through 3Q of each fiscal year, spending on panel travel was reduced by \$5.6 million—a reduction of 47 percent below FY 2010.</li> <li>○ The use of non-refundable airline tickets continued to be encouraged for meetings required by the Federal Advisory Committee Act (panels, advisory committee meetings, committees of visitors). Airline tickets savings totaled \$627, 700 through the third quarter of FY 2014.</li> </ul> </li> <li>• Conferences: Continued the policy (set forth in NSF Bulletin No. 12-19) to ensure that all conference costs are appropriate, necessary, and managed in a way that minimizes expenses. This policy established requirements related to conference planning, approval, and reporting. To ensure full transparency to the public of the agency's major conferences, published the NSF OMB M-12-12 Annual Report – FY 2013 on the NSF public website. This report provided details on conferences hosted by NSF that cost over \$100,000.             <ul style="list-style-type: none"> <li>○ Continued enforcing the conference reporting and notification requirements set forth in Section 3003 of the 2013 Continuing Appropriations Act (P.L. 113-6). Compiled information on NSF-sponsored conferences costing over \$100,000 in order to prepare the required annual report and ensure consistency with conferences tracked under the NSF Bulletin No. 12-19 approval process. Provided reports to the OIG on conferences costing over \$20,000 to meet notification requirements of Section 3003.</li> <li>○ Increased utilization of the Blanket Purchase Agreements associated with the light refreshment program for on-site panel and advisory committee meetings, leading to lower costs for the program as compared to last fiscal year.</li> </ul> </li> <li>• Printing: Currently developing a comprehensive Managed Print Services Strategy based on current market research and on the cost-benefit analysis previously prepared. This strategy consists of several key components that directly address management challenges as it relates to printing, and includes reducing the total number of printing devices, manufacturers, and models.</li> <li>• Telecommunications: In the first quarter of FY 2014, NSF initiated a pilot for the use of Telecommunications Expense Management Services (TEMS) in four directorates and offices. Since the pilot began, NSF has expanded the use of TEMS services to additional directorates, with 100 percent NSF participation expected by October 2014. NSF is in the process of determining TEMS program savings to date.</li> <li>• Mobile Devices   Telecommunications: Instituted a policy (NSF Bulletin No. 13-05) that requires documentation of a business need and eligibility before a mobile communications device can be purchased for each individual. The policy, in conjunction with the TEMS initiative, will help drive down the cost of mobile devices.</li> <li>• IPA Costs: Completed the examination of IPA costs as outlined in the Corrective Action Plan associated with the OIG report on the</li> </ul> |
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|  | <p>“Audit of Costs Associated with NSF’s Use of Intergovernmental Personnel Act (IPA) Assignees.” The examination included multiple analyses of IPA data, a discussion with institutional representatives of the Federal Demonstration Partnership and internal focus groups with IPAs and managers of IPAs. The formal study and NSF response were sent to OIG in June 2014.</p> <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Merit Review Business Practice: Support for virtual panels will be maintained with a target for FY 2015 of 33 percent of panels being held virtually.</li> <li>• Travel: Continue to aggressively manage travel costs to meet the agency’s long-term travel reduction goals and streamline travel order and voucher procedures. Solicit feedback from NSF directorates and offices on proposed changes to improve timeliness of traveler submission of vouchers and implement changes to NSF travel reimbursement procedures.</li> <li>• Conferences:             <ul style="list-style-type: none"> <li>○ Continue to monitor per person costs of light refreshments purchased for on-site panel and advisory committee meetings.</li> <li>○ Continue to follow the conference planning, approval, and reporting requirements established to minimize the cost of conferences hosted and attended by NSF.</li> </ul> </li> <li>• Printing: Garner buy-in for the Managed Print Services Strategy from NSF senior management with a plan to begin execution such that a complete implementation will coincide with the agency’s relocation to Alexandria VA.</li> <li>• Telecommunications: Fully optimize mobile device plans across the Foundation through use of the TEMS contract. Confirm yearly savings with all NSF organizations using TEMS for a full fiscal year.</li> <li>• IPA Costs: Manage costs and benefits for its use of IPAs at the level of the IPA program as a whole. The agency will incorporate data on IPAs and their costs in the HRStat dashboard and quarterly review process and create a summary annual report. NSF will continue to look at minimizing NSF’s IPA costs in the areas of expanded telework (including possible remote duty assignments) and cost sharing of IPA salaries with universities, balancing the potential for costs savings with the operational risks of incorporating strategies to lower costs. NSF will review the overall IPA program and associated costs and benefits every four years.</li> <li>• The SAVE Award is transitioning to be an agency-led initiative, per OMB Memo M-14-12. OMB is in the process of developing resources to assist agencies in establishing an agency-based mechanism similar to the SAVE Award program. NSF may consider utilizing the IDEA Share “challenge” approach, to create a similar campaign for fielding potential administrative saving ideas.</li> </ul> |
| <p><b>CHALLENGE: Ensuring Proper Stewardship of ARRA Funds</b></p> <p><b>NSF Overview:</b> In accordance with OMB M 34-11, all NSF ARRA awards without waivers expired on or before September 30, 2013. Close out continued throughout FY 2014, and 89.8 percent are now financially closed. Similarly, the Obama Administration’s ARRA implementation efforts are coming to a close government-wide. Effective October 1, 2013, OMB decreased its role in connection with ARRA reporting, and the Recovery Transparency and Accountability Board became the lead executive agent. Soon thereafter, recipient reporting for ARRA awards was repealed by Congress as of February 1, 2014, resulting in only one quarter of reporting during FY 2014. NSF’s exemplary ARRA comprehensive, multi-stage review process ultimately resulted in in a recipient reporting compliance rate of 99 percent every quarter beginning in December 2009, with the exception of the October 2013 reporting period during the government shutdown. In FY 2015, NSF will continue to monitor 309 remaining open ARRA awards – all recipients of OMB-granted waivers – through completion.</p> |  |

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| <p><i>a. Monitoring the awards, especially those made to high-risk institutions, to ensure that ARRA funds are not subject to fraud, waste and abuse, particularly in light of OMB's directive to accelerate funding.</i></p> | <p><b>NSF's Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>• Tracked expenditures and for all active ARRA awards, facilitating closeout as appropriate.</li> <li>• Continued advanced monitoring activities for all NSF awardees with additional risk points assigned to ARRA awards with waivers to expend funds beyond September 30, 2013.</li> <li>• Desk review procedures continue to ensure that awardees with active ARRA awards have processes to effectively segregate financial information in their accounting systems.</li> <li>• Continued to work with awardee to ensure transparency of MREFC expenditures for the Daniel K. Inouye Solar Telescope (DKIST), formerly Advanced Technology Solar Telescope (ATST) through monthly reporting to OMB.</li> <li>• Continued to require ARRA and non-ARRA funded awardees of MREFC projects to report on earned value management and milestone status.</li> </ul> <p><b>NSF's Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• In FY 2015, NSF will continue to oversee ARRA-related processes for institutions with the 309 active ARRA awards as part of NSF's advanced monitoring activities for all awardees.</li> <li>• NSF has tentatively planned a Business System Review of the DKIST for late FY 2016, which will include ARRA-funded activities.</li> </ul> |
| <p><i>b. Determining if awardees have spent their ARRA funds in accordance with applicable federal and NSF requirements, including the special terms and conditions of their ARRA Awards.</i></p>                             | <p><b>NSF's Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>• Continued to employ the ARRA review module as part of the advanced monitoring to ensure that all ARRA awardees have processes to effectively segregate financial information in their accounting systems, as well as report that information as required.</li> <li>• Took no significant actions in FY 2014 relating to determining if awardees spent funds in accordance with the special terms and conditions of ARRA. The only special conditions relating to the spending of ARRA funds concerned "burn rate" and "acceleration," and these activities occurred during prior fiscal years.</li> </ul> <p><b>NSF's Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Continue to oversee ARRA-related processes for institutions with the 309 active ARRA awards as part of NSF's advanced monitoring activities for all awardees.</li> </ul>   |
| <p><i>c. Ensuring awardee's timely, complete and accurate reporting on Federal Reporting.gov</i></p>  | <p><b>NSF's Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>• Delivered a reporting compliance rate of 97.4 percent during FY 2014 Q1 even though NSF was unable to conduct its normal recipient reporting outreach activities due to the government shutdown during the entirety of the report submission period.</li> <li>• ARRA recipient reporting requirements repealed by law as of February 1, 2014. NSF's exemplary ARRA recipient reporting data quality review process ultimately resulted in an average reporting compliance rate of 99.65 percent for 18 quarters of recipient reporting.</li> </ul>   |

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|   | <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• N/A</li> </ul>   |
| <p><b>CHALLENGE: Encouraging the Ethical Conduct of Research</b></p> <p><b>NSF Overview:</b> The responsible and ethical conduct of research is critical to ensure excellence, as well as public trust, in science and engineering. Moreover, the globalization of science and engineering research and education poses unique challenges and risks due to variations in international codes of conduct. Recognizing the importance of ethical conduct of research and in accordance with the America COMPETES Act of 2009 (ACA), NSF requires that each institution submitting a proposal certify that it has a plan to provide appropriate training and relevant oversight in the ethical conduct of research to all undergraduates, graduate students, and postdoctoral researchers who will conduct NSF-sponsored research and to have the plan available for review upon request. Research shows that most training now offered is ineffective and sometimes has negative effects. Furthermore, a traditional focus on responsible conduct of research is overly narrow and overlooks many equally important ethical dimensions of STEM research and practice. NSF implementation of ACA promotes awareness of ethical issues to NSF staff, as well as U.S. and international scientific research and education communities. In addition, research ethics are addressed in policy guidance, incorporated into program funding opportunities, and emphasized through the development of resources to enhance the ability of research institutions to cultivate cultures of academic and research integrity.</p> |  |
| <p><i>Provide more meaningful guidance regarding institutional administration of Responsible Conduct of Research (RCR) training.</i></p>  | <p><b>NSF’s Significant Actions Taken in FY 2014</b></p> <ul style="list-style-type: none"> <li>• Launched a new ethics program to replace the Ethics Education in Science and Engineering (ESEE) Program. Whereas ESEE focused changing individual behavior (graduate students’) based on instruction, the new program, “Cultivating Cultures for Ethical STEM” (CCE STEM)”, focuses on cultivating climates that expect and encourage academic and research integrity at all levels. Rather than focusing on curriculum development, the focus of the new program is to identify factors that are effective in creating climates that foster integrity.</li> <li>• Made a 5-year award to the National Academies to expand the National Academy of Engineering’s (NAE) Online Ethics Center for Engineering and Science (OEC) to include material relevant to all fields that NSF supports. This award included a large supplement to University of Delaware’s Center for Science, Ethics, and Public Policy (CSEPP), to develop a cohort of international collaborators to collect new ideas and best practices from international sources about ethics and social responsibility in research and education, and expertise in developing policies and codes of ethics for STEM faculty, students, and practitioners.</li> </ul> <p><b>NSF’s Anticipated Next Steps</b></p> <ul style="list-style-type: none"> <li>• Continue to evaluate the effectiveness of various approaches to training and cultivating ethical conduct of research and the importance of ethical conduct of research and share state-of-the-art understanding of what approaches are most effective in outreach opportunities with NSF staff, as well as U.S. and international scientific research and education communities.</li> </ul> |
| <p><b>CHALLENGE: Implementing a new Financial Management System</b></p> <p><b>NSF Overview:</b> On October 14, 2014 NSF retired the financial functions of its legacy system FAS and successfully implemented its financial system modernization initiative, iTRAK, on schedule and within budget. iTRAK is off to a strong start with system users successfully processing payments, entering requisitions, distributing funds, receiving and paying invoices and reconciling and approving purchase card transactions. iTRAK is hosted by a Shared Service Provider (SSP) in the “cloud” and managed by the Financial Systems Branch (FSB), which is part of the Division of Financial Management (DFM). Now that iTRAK and all associated IT systems and</p>   |  |



services are available, attention may be turned toward the on-going efforts related to training, providing all users with access to iTRAK and fine tuning business processes to ensure NSF's continued leadership in stewardship and federal financial management.

*Execute risk management strategy to address risks such as availability of key staff to provide input to the iTRAK project and agency reluctance to change its established business processes.*

**NSF's Significant Actions Taken in FY 2014**

- Engaged division directors across the Foundation to identify key staff to work with the BFA iTRAK team.
- Ensured project schedule accounted for peak workload and seasonal cycles across the Foundation when key staff would be unavailable.
- Prioritized iTRAK activities ahead of certain operational tasks.
- Initiated personnel actions with HRM to detail key staff to the iTRAK project and to bring back former NSF staff as rehired annuitants to provide additional resources.
- Implemented an outreach campaign across the Foundation informing executives, managers, and staff of the business process changes necessary to implement iTRAK.
- Conducted focus group sessions and meetings with executives, managers, and staff to receive input on business process changes.
- Engaged the iTRAK governance groups such as the iTRAK Executive Council and iTRAK Change Control Board to receive input on changes to business processes and assistance in the outreach and communication of changed business processes.
- Conducted a series of Town Halls and published information in the *Weekly Wire* and *iTRAK* Newsletter on critical dates and changes in procedures for FY 2014 year end close and implementation of iTRAK in FY 2015.
- Converted the financial data from FAS to iTRAK successfully.
- Finalized the Account Code Structure, which will be used in iTRAK, Concur and LearnNSF.
- Implemented a rigorous training plan that included over 100 in-person training classes and six (6) online training courses.
- Stood up the iTRAK help desk successfully.
- Performed system testing.

**NSF's Anticipated Next Steps**

- Lead a working group as part of NSF's Enterprise Data solution that will inform NSF staff of available tools used to access financial data. These tools include the Reporting Database Server (Report SQL), NSF Enterprise Data Warehouse and Business Intelligence, Enterprise Information System (EIS) and iTRAK.
- Assess impacts of the new financial system on users, and continue the recently established additional training classes, coaching sessions and communications to help reinforce the new business processes and to minimize the impact to users.
- Continue efforts in setting up processes with the Shared Service Provider (SSP), Accenture, in order to manage the support of iTRAK.
- Develop a continuous learning plan that includes training on functionality where updates to business processes are refined, new employee training, and advanced training on certain financial functions and reporting
- Support the efforts in setting up the new governance process for the Account Code Structure which is led by NSF's Budget Division.
- Continue to analyze NSF's legacy systems for changes that are necessary in order to optimize iTRAK's full functionalities.
- Continue education and outreach to senior leadership, management and NSF staff on elements of change management.

## Freeze the Footprint

NSF is scheduled to move to new headquarters in Alexandria, Virginia in December 2016. The General Services Administration (GSA) negotiated new leases for NSF’s current primary office spaces, Stafford Place I and II, to allow time for the new NSF headquarters to be built and made ready for occupancy. Because NSF will be moving to a new facility, the agency cannot make any major investments in the current headquarters space to renovate and create new and more flexible work spaces to accommodate demands for staff growth and meeting spaces as there would not be enough time to realize a return on the investment. NSF will continue to work with its facilities team to ensure maximum utilization of the current space available. Additionally, the new lease rates in Alexandria will be lower than the current lease rates in Stafford Place I and II.

NSF has dedicated a significant effort to planning for its new headquarters, which will take the agency 15 years into the future. This forward looking effort is incorporating the most creative thinking in terms of flexible workspaces, functionally-based office and workspace standards, virtual technologies, cloud computing, and alternate work styles such as additional teleworking that will allow the agency to increase in staff numbers but not in real estate footprint.

| Freeze the Footprint Baseline Comparison |                         |             |                                    |
|--|-------------------------|-------------|------------------------------------|
|  | <i>FY 2012 Baseline</i> | <i>2013</i> | <i>Change<br/>(FY 2012 – 2013)</i> |
| <i>Square Footage</i>                    | 1,192,544               | 1,200,490   | 7,946                              |

Note: Preliminary information, pending verification by GSA.

| Reporting of Operations and Maintenance Costs – Owned and Direct Lease Buildings |                              |             |                                    |
|--|------------------------------|-------------|------------------------------------|
|  | <i>FY 2012 Reported Cost</i> | <i>2013</i> | <i>Change<br/>(FY 2012 – 2013)</i> |
| <i>Operation and<br/>Maintenance Costs<br/>(\$ in millions)</i>                  | \$4.637                      | \$3.374     | -\$1.263                           |

## **Undisbursed Balances in Expired Grant Accounts**

In FY 2014, NSF funded research and education in science and engineering through grants and cooperative agreements to 1,827 colleges and universities and other institutions. NSF grants are funded in one of two ways: 1) the grant may be funded fully at the time of award, called a standard grant, or 2) the grant may be funded incrementally (one year at a time), called a continuing grant increment. In both cases, all costs on the grant must be incurred by the college, university, or institution during the term of the grant period. At NSF, grantees typically have 90 days after the grant expires to complete final drawdowns and expenditures.

The information provided here pertains to the agency's two grant making appropriation accounts: Research and Related Activities (R&RA) and Education and Human Resources (EHR). The data reported are based on the following definitions:

- An **expired grant** is a grant award that has reached the grant end date and is eligible for closeout. For NSF, this means grants whose period of performance has expired.
- **Undisbursed balances on expired grants** represent the unliquidated obligation amounts that remain available for expenditure on an expired grant award before it is closed out.

Once a grant has expired, NSF takes actions to close out the grant both administratively and financially. The financial closeout action takes place 90 days after the award expiration date when the undisbursed balances are de-obligated from the award. Administrative closeout is initiated after financial closeout is completed.

The methodology used to develop undisbursed balances on expired grant awards is consistent with the U.S. Government Accountability Office (GAO) conclusions documented in their April 2012 report, GAO-12-360, *Grants Management: Action Needed to Improve the Timeliness of Grant Closeouts by Federal Agencies*, along with discussion and clarifying information from GAO. The data reported here reflects the amount of undisbursed balances in grant accounts that have reached their end date and are eligible for closeout.

### **1. Details on future action the department, agency, or instrumentality will take to resolve undisbursed balances in expired grant accounts.**

NSF continually monitors its grant awards throughout their lifecycle following a comprehensive post-award monitoring process. NSF grants are closed based on their period of performance end date. Ninety days after the grant period has expired, all unliquidated (or undisbursed) are de-obligated. Having small undisbursed balances at the end of the grant period is a routine occurrence, as not all grantees fully spend all of the funds obligated in the course of their research.

### **2. The method that the department, agency or instrumentality uses to track undisbursed balances in expired grant accounts.**

NSF completes financial closeout of expired grant awards on a monthly basis using a set of automated and manual activities. Eligibility for closeout for all NSF awards begins 90 days after the award expiration date. The NSF Financial Accounting System (FAS) closeout process automatically de-obligates any unliquidated (unspent) award balance, produces an award closeout transaction to flag the

**Appendix 5: Undisbursed Balances in Expired Grant Accounts**

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award as financially closed, and sends the financial closeout date to the NSF award management system. This initiates final administrative closeout procedures in the award management system.

The expected award closeout date is made available to awardees and staff through the Award Cash Management Service (ACM\$). ACM\$ is a new feature of Research.gov that went live for all grantees on July 1, 2013. ACM\$ is NSF's new approach to award payments and associated post-award processes. It requires the submission of award level payment amounts and expenditures each time funds are requested by awardees. ACM\$ allows NSF post-award monitoring at the individual award level throughout the lifecycle of the award.

**3. Identification of undisbursed balances in expired grant accounts that may be returned to the Treasury of the United States.**

When a grant is closed out, the unliquidated (or undisbursed) balances are de-obligated. The de-obligated grant balances are treated one of three ways:

- If the source appropriation is still active, the balances are recovered by NSF and remain available for valid new obligations until the source appropriation's expiration date.
- If the source appropriation has expired but funds have not yet been canceled, the grant balances are recovered by NSF and remain available for upward adjustments on other existing obligations within the source appropriation.
- If the source appropriation has been canceled, the grant balances are returned to the Treasury.

At 2014 fiscal year-end there were no grants that had to be canceled. Due to the new financial system implementation, all undisbursed balances in expired grant accounts were de-obligated prior to year-end. These grant balances will be returned to Treasury.

**4. In the preceding three fiscal years, details on the total number of expired grant accounts with undisbursed balances (on the first day for each fiscal year) for the department, agency, or instrumentality and the total finances that have not been obligated to specific project remaining in the accounts.**

The number of expired grants with undisbursed balances for the preceding three fiscal years is provided in the table below. These numbers and balances reflect a point in time before they are closed out in our normal processes described above. The table shows that for FY 2014, there were 4,295 expired grants with undisbursed balances of \$72,612,661.

| Status of Undisbursed Balances in Expired Grants |                            |                            |                            |
|--|----------------------------|----------------------------|----------------------------|
|  | FY 2014<br>(as of 9/30/14) | FY 2013<br>(as of 9/30/13) | FY 2012<br>(as of 9/30/12) |
| Number of expired grants                         | 4,295                      | 6,556                      | 7,986                      |
| Undisbursed balances prior to closeout           | \$72,612,661               | \$118,371,186              | \$184,489,992              |

## Awards to Affiliated Institutions

This table lists the institutions affiliated with members of the National Science Board (NSB) in FY 2014.

| Affiliated Institution <sup>1</sup>                 | Awards Obligated<br>in FY 2014<br>(Dollars in thousands) |
|---|--|
| American Association for the Advancement of Science | \$ 6,567   |
| Arizona State University                            | 16,591   |
| California Institute of Technology                  | 92,867   |
| Clemson University                                  | 8,753  |
| Cornell University                                  | 120,184  |
| Georgetown University                               | 1,659  |
| Georgia Institute of Technology                     | 61,768   |
| Illinois Institute of Technology                    | 1,154  |
| Massachusetts Institute of Technology               | 90,468   |
| Princeton University                                | 60,777   |
| Purdue University                                   | 75,719   |
| Stanford University                                 | 85,947   |
| Texas A&M University                                | 8,918  |
| Tufts University                                    | 1,933  |
| University of California – Berkeley                 | 114,400  |
| University of California – Davis                    | 7,074  |
| University of Chicago                               | 40,996   |
| University of Colorado                              | 67,425   |
| University of Michigan                              | 90,066   |
| University of Missouri – Columbia                   | 3,817  |
| University of Oklahoma                              | 11,098   |
| University of Oregon                                | 17,964   |
| William Marshall Rice University                    | 6,307  |
| <b>TOTAL</b>  | <b>\$ 992,452</b>  |

<sup>1</sup> This table is provided solely in interest of openness and transparency. NSB establishes the policies of NSF within the framework of applicable national policies set forth by the President and Congress. Federal conflict of interest rules prohibit NSB members from participating in matters where they have a conflict of interest or there is an impartiality concern without prior authorization from the designated agency Ethics Official. Individual NSF grant awards are made pursuant to a peer-review based process and most are not reviewed by the Board. With regard to matters that are brought to the Board, NSB members are not involved in the review or approval of grant awards to their affiliated institutions.

## **Patents and Inventions Resulting From NSF Support**

The following information about inventions is being reported in compliance with Section 3(f) of the National Science Foundation Act of 1950, as amended [42 U.S.C. 1862(f)]. There were 1,542 NSF invention disclosures reported to the Foundation either directly or through NIH's iEdison database during FY 2014. Rights to these inventions were allocated in accordance with Chapter 18 of Title 35 of the United States Code, commonly called the "Bayh-Dole Act."

## Acronyms

|          |  |         |   |
|----------|--|---------|---|
| ACA      | America COMPETES Act of 2009                                     | FBWT    | Fund Balance with Treasury  |
| ACM\$    | Award Cash Management Service                                    | FECA    | Federal Employees' Compensation Act                                       |
| AFGE     | American Federation of Government Employees                      | FERS    | Federal Employees Retirement System                                       |
| AFR      | Agency Financial Report  | FFMIA   | Federal Financial Management Improvement Act of 1996                      |
| AIMS     | Antarctic Infrastructure Modernization for Science               | FFR     | Federal Financial Report  |
| AMBAP    | Award Monitoring and Business Assistance Program                 | FFRDC   | Federally Funded Research and Development Center                          |
| AOAM     | Agency Operations and Award Management                           | FISCAM  | Federal Information System Controls Audit Manual                          |
| AOR      | Architect of Record  | FMFIA   | Federal Managers Financial Integrity Act of 1982                          |
| APR      | Annual Performance Report  | FNSF    | Future NSF Headquarters Office  |
| ARRA     | American Recovery and Reinvestment Act of 2009                   | FSIP    | Federal Service Impasses Panel  |
| ASC      | Antarctic Support Contractor                                     | FTE     | Full-Time Equivalent  |
| ATST     | Advanced Technology Solar Telescope                              | FY      | Fiscal Year   |
| AURA     | Association of Universities for Research in Astronomy            | GAAP    | Generally Accepted Accounting Principles                                  |
| BFA      | Office of Budget, Finance and Award Management                   | GAO     | Government Accountability Office  |
| BRP      | Blue Ribbon Panel  | GPRA    | Government Performance and Results Act of 1993                            |
| BSR      | Business System Review   | GSA     | General Services Administration   |
| CAP      | Cross-Agency Priority (Goal)                                     | H-1B    | Non-immigrant Petitioner Fees Account funds                               |
| CAS      | Cost Accounting Standards  | ICASS   | International Cooperative Administrative Support Services                 |
| CCE STEM | Cultivating Cultures for Ethical STEM                            | ICQA    | Internal Control Quality Assurance  |
| CDR      | Conceptual Design Review   | IDR     | Interdisciplinary Research  |
| CFO      | Chief Financial Officer  | IG      | Inspector General   |
| COFAR    | Council on Financial Assistance Reform                           | INSPIRE | Integrated NSF Support Promoting Interdisciplinary Research and Education |
| COSO     | Committee of Sponsoring Organizations of the Treadway Commission | IPA     | Intergovernmental Personnel Act   |
| COTS     | Commercial Off-the-Shelf   | IPERA   | Improper Payments Elimination and Recovery Act of 2010                    |
| CSRS     | Civil Service Retirement System                                  | IPERIA  | Improper Payment Elimination and Recovery Improvement Act of 2012         |
| DAEO     | Designated Agency Ethics Official                                | IT      | Information Technology  |
| DAS      | Division of Administrative Services                              | K-12    | Kindergarten to Grade 12  |
| DCAA     | Defense Contract Audit Agency                                    | LFO     | Large Facilities Office   |
| DIS      | Division of Information Systems                                  | LRO     | Labor Relations Officer   |
| DKIST    | Daniel K. Inouye Solar Telescope                                 | LSST    | Large Synoptic Survey Telescope   |
| DMF      | Social Security Administration's Death Master File               | MREFC   | Major Research Equipment and Facilities Construction                      |
| DNP      | Do Not Pay   | NIH     | National Institutes of Health   |
| DOL      | Department of Labor  | NSB     | National Science Board  |
| DRB      | Director's Review Board  | NSF     | National Science Foundation   |
| EEO      | Equal Employment Opportunity                                     | OIG     | Office of Inspector General   |
| EESE     | Ethics Education in Science and Engineering                      | OMB     | Office of Management and Budget   |
| EHR      | Education and Human Resources                                    | OPM     | Office of Personnel Management  |
| EIS      | Enterprise Information System                                    | PP&E    | General Property, Plant, and Equipment                                    |
| EPLS     | GSA Excluded Parties List System                                 | PTR     | Potentially Transformative Research                                       |
| FAS      | Financial Accounting System                                      |         |   |
| FASAB    | Federal Accounting Standards Advisory Board                      |         |   |



|            |   |
|------------|---|
| R&D        | Research and Development                            |
| R&RA       | Research and Related Activities                     |
| RCR        | Responsible Conduct of Research                     |
| RFP        | Request for Proposal                                |
| RSSI       | Required Supplementary Stewardship Information      |
| RTSC Polar | Raytheon Antarctic Logistics Support Contract       |
| S&E        | Science and Engineering                             |
| SAM        | GSA System for Award Management                     |
| SBR        | Statement of Budgetary Resources                    |
| SFFAS      | Statement of Federal Financial Accounting Standards |
| SOS        | Schedule of Spending                                |
| SSP        | Shared Service Provider                             |
| STEM       | Science, Technology, Engineering, and Mathematics   |
| TEMS       | Telecommunications Expense Management Services      |
| UGG        | Uniform Grant Guidance                              |
| USAP       | United States Antarctic Program                     |
| USGAAP     | U.S. Generally Accepted Accounting Principles       |
| USSGL      | U.S. Standard General Ledger                        |