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

MEMORANDUM

DATE: March 10, 2017

TO: Dr. France Córdova, Director

Ms. Martha A. Rubenstein, Chief Financial Officer

FROM: for Mark Bell, Assistant Inspector General for Audit

SUBJECT: *National Science Foundation FY 2016 Management Letter*, Number 17-2-005

Attached is the National Science Foundation Fiscal Year 2016 Management Letter prepared by Kearney and Company. The letter includes observations and suggestions identified during the FY 2016 audit of NSF's financial statements (seven new observations and six repeat/revised observations, one of which relates to the prior year significant deficiency) that were not considered to be significant deficiencies in FY 2016. A draft of this report was previously submitted to your staff for comment and their comments were considered in preparing this final report.

To comply with the Inspector General Empowerment Act, we will be sharing this letter with various interested parties, including Congress, and will be posting it to the OIG web site.

We will not be tracking the corrective actions to this report separately, however these issues will be considered in the FY 2017 financial statement audit process.

We appreciate the cooperation that was extended to Kearney and us during this audit. If you have any questions, please call me at 703-292-2985 or Catherine Walters at 703-292-5018.

Attachment

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MANAGEMENT LETTER

To the National Science Board and the Inspector General of the National Science Foundation

In planning and performing our audit of the National Science Foundation (NSF)'s financial statements as of and for the year ending September 30, 2016, in accordance with auditing standards generally accepted in the United States of America; 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 15-02, *Audit Requirements for Federal Financial Statements*, Kearney & Company, P.C. (defined as "Kearney," "we," and "our" in this letter) considered NSF's internal control over financial reporting and compliance with provisions of applicable laws, regulations, contracts, and grant agreements in order to determine our auditing procedures for the purpose of expressing an opinion on the financial statements, and not to provide assurance on internal control over financial reporting or on compliance. Accordingly, we do not express an opinion of the effectiveness of NSF's internal control over financial reporting or on its compliance.

Our *Independent Auditor's Report on Internal Control Over Financial Reporting*, dated January 13, 2017, noted no material weaknesses and one significant deficiency. The significant deficiency is not repeated in this letter, as it is explained in detail in that report.

Although not considered to be material weaknesses or significant deficiencies, we noted certain matters involving internal control that are presented in this letter for NSF's consideration. These observations and suggestions are intended to assist in improving NSF's internal control or result in other operating efficiencies. We have not considered NSF's internal control since January 13, 2017.

Exhibit I of this letter provides NSF management's response to the observations and suggestions detailed in this letter.

We appreciate the courteous and professional assistance that NSF's personnel extended to us during our audit. We would be pleased to discuss our observations and suggestions with NSF at any time.

The purpose of this letter is solely to communicate other deficiencies in internal control or non-compliances noted during the audit to management and those charged with governance, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. Accordingly, this communication is not suitable for any other purpose.

KEARNEY & COMPANY

Alexandria, Virginia
March 9, 2017

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MANAGEMENT LETTER COMMENTS

STATUS OF PRIOR YEAR MANAGEMENT LETTER FINDINGS

During the audit of the NSF's fiscal year (FY) 2015 financial statements, a predecessor auditor identified matters that were reported in an internal control report and a management letter. During the audit of the FY 2016 financial statements, Kearney assessed the status of the deficiencies reported by the predecessor auditor. As described in the table below, one of the items reported in the FY 2015 Financial Management Letter were closed. Four control deficiencies reported in FY 2015 remained open; its FY 2016 status is provided below.

PY No.	Financial - FY 2015 Management Letter Findings	Status
ML 15-01	Grants Monitoring	Closed
ML 15-02	Grant Accrual Estimation Process	Open
ML 15-03	Monitoring of Cost Reimbursement Contracts	Open
ML 15-04	Intragovernmental Transactions	Open
ML 15-05	Accounting Policies and Procedures	Open

As part of the FY 2016 financial statement audit, Kearney also assessed the status of information technology deficiencies reported by the predecessor auditor. As described in the table below, seven of the items reported in the FY 2015 Information Technology Management Letter were closed. One control deficiency reported in FY 2015 remained open; its FY 2016 status is provided below.

PY No.	IT - FY 2015 Management Letter Findings	Status
IT ML 15-01	iTRAK Assessment and Authorization	Closed
IT ML 15-02	iTRAK Password Controls	Closed
IT ML 15-03	iTRAK Configuration Management (Application Changes)	Closed
IT ML 15-04	iTRAK Account Management & ACM$ Periodic Review of Access	Closed
IT ML 15-06	iTRAK Configuration Management (Baselines)	Closed
IT ML 15-07	iTRAK Audit Logging	Closed
IT ML 15-08	iTRAK Business Impact Assessment	Closed
IT ML 15-09	iTRAK Accreditation Packages	Open
IT ML 15-14	NSF Background investigations	Closed

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MODIFIED REPEAT MANAGEMENT LETTER COMMENTS

1. Budgetary Resources

NFR 2016-FR-03: Monitoring and Oversight over Undelivered Orders Needs Improvement
(Note: This NFR is derived from the 'Accounting Policies and Procedures' management letter comment noted on the table above)

Background:

Obligations are definite commitments that will result in outlays, immediately or in the future. NSF records obligations in its financial management system when it enters into an agreement, such as a contract or purchase order, to purchase goods and services. Once recorded, obligations remain open until they are fully reduced by a disbursement, are deobligated, or until the appropriation funding the obligations is cancelled. As payments are made, obligations are liquidated by the amount of the payments. Undelivered orders (UDO) represent the cumulative amount of orders, contracts, and other binding agreements for which the goods and services ordered have not been received, or for which the goods and services have been received, but payment has not yet been made.

Agencies should maintain policies, procedures, and information systems to ensure that UDOs continue to represent required future Federal outlays. NSF has developed and implemented policies and procedures around appropriate steps for the contract closeout process. The de-obligation of excess funds is performed as part of its contract closeout process. During the closeout process, NSF utilizes a Contractor Performance Evaluation (CPE) to document the end of a contract/interagency agreement in order to determine whether the outstanding funds within the referenced contract/agreement are ready for de-obligation and ultimately closeout. However, there does not appear to be a similar process for monitoring and closing UDOs.

NSF reported more than $462 million in non-grant related UDOs, as of June 30, 2016, that covered a broad range of budgetary authority, including annual, multi-year, and no-year appropriations.

Observation:

We tested the validity of a sample of 38 UDOs, totaling $20.21 million, out of a population of 2,940 UDOs, totaling $34.47 million as of June 30, 2016. We focused our testing on those UDOs that had no activity during FY 2016, because we considered them to have a higher risk for invalidity.

During our testing, we identified 13 invalid open obligations, totaling $6.83 million (34 percent of both the number of transactions and dollars tested). The invalid obligations consisted of five non-Federal (four contract-related [$2.82 million] and one travel-related [$153,000]) transactions and eight Federal (interagency agreements [$3.43 million] and relocation-related [$427,000]) transactions. We determined that these UDOs were invalid based on inactivity, lack of

supporting documentation, or inability to support a bona fide need to keep the outstanding obligation open.

Non-Federal (Contract related) UDOs: The Division of Acquisition and Cooperative Support (DACS) uses the FAR guidance (i.e., closeout time standards) as part of its contract closeout process, which includes the determination of whether excess funds should be deobligated. For contract related UDO transactions, DACS noted that the related contractual instruments fall under the 20-month time requirement for closeout. Although the 20-month period had not expired, the UDO transactions had no disbursement or expenditure activity for over a year. For the tested items, DACS informed us that no additional expenditures were expected, thus confirming that the funds were ready for deobligation.

Non-Federal (Travel-related) UDO: Travel funds are obligated for employee travel. Travel expenditures were incurred against the tested obligation, but more than three years had passed from the date of the last disbursement. Based on discussions with NSF staff, we were informed that no additional expenditures were expected and the remaining funds were ready for deobligation.

Federal (Relocation-related) UDOs: Travel funds are obligated for employee relocation. Travel expenditures were incurred against the tested obligations, but more than a year had passed from the date of the last disbursement. Through our discussions with NSF staff, we determined that the applicable program office (i.e., Division of Administrative Services, DAS) depended on another Federal entity for ultimate closeout of the obligations. DAS informed us that, based on discussions with the other agency, no additional expenditures were expected, thus confirming that the funds were ready for deobligation.

Federal (Interagency Agreement) UDOs: BFA (DACS, Division of Grants and Agreements [DGA], etc.) oversees outgoing interagency agreements entered into by NSF and other Federal agencies. Although a shared responsibility exists in the oversight of interagency agreements, BFA heavily relies on the receiving agencies to determine UDO validity and whether the agreements are ready for closeout. BFA informed us that no additional expenditures were expected for the tested items, thus confirming that the UDO balances were ready for deobligation.

Suggestions:

We suggest that NSF establish standardized processes to ensure the validity and accuracy of unliquidated obligations. Specifically, NSF should:

1. Develop and implement formal policies and procedures over a periodic UDO certification process to assess the validity of outstanding obligation balances and ensure appropriate communication and monitoring takes place.
2. Develop and implement policies and procedures for the management of obligations between respective NSF offices, including procedures to estimate invalid open

obligations and determine if a temporary adjustment to agency open obligation estimates is required for year-end financial reporting.

2. Grants Payable

NFR 2016-FR-04: Estimation and Validation Process for the Incurred but not Reported (IBNR) Grant Liability (Note: This NFR is derived from the 'Grant Accrual Estimation Process' management letter comment noted on the table above)

Background:

Generally accepted accounting principles require that Federal agencies record liabilities for costs incurred but not paid as of the financial statement date. To do this, agencies may need to estimate liability amounts relating to costs for which they have not obtained an invoice or for which it would be burdensome to track. Additionally, management should perform analyses in subsequent periods to validate that accrual methodology and key underlying assumptions were appropriate and to determine whether updates to the methodology are required.

NSF's major estimate relates to grants. Grant cost is composed of two elements: 1) actual grant expenditures reported by awardees through the draw process and 2) an estimate of awardee expenditures incurred, but not yet reported or drawn (IBNR) from NSF (referred to hereafter as the IBNR liability).

Prior to fiscal year (FY) 2013, NSF based the IBNR liability on historical data reported by awardees on a quarterly basis. In June 2013, NSF implemented a new awardee cash request and expenditure reporting system, the Award Cash Management Service (ACM$), which accelerated the manner and timing by which awardees could draw funds and report expenditures for their awards.

In FY 2015, NSF developed a grant accrual methodology based on a Linear Regression Model (LRM) using historical data from FYs 2001 through 2014. The grant accrual methodology objectives are to accumulate historical data, determine and execute a methodology, validate the accrual for reasonableness using a statistical sampling technique, and evaluate and update the methodology as necessary. The original methodology used pre-ACM$ data, as there was insufficient ACM$-based data to include in the model. NSF has added ACM$-based data as it has become available. The LRM (using both pre-ACM$ and ACM$ data) estimated the IBNR liability at $411.6 M for June 30, 2016 and $412.6 M for September 30, 2016.

NSF performs a two part validation of the IBNR liability. Part one includes an annual statistical validation of the September 30 IBNR liability estimate. This validation serves two purposes: to assess the reasonableness of the estimate, and to provide data for use in future grant accrual calculations. NSF uses the results of the statistical validation to determine the "cash on hand" amount included as input data for the IBNR liability for future periods. Part two consists of conducting a validation of the "big picture" factors to determine the best LRM is in place.

Observation:

During our analysis of the IBNR liability estimate, we determined that NSF does not have an adequate validation process in place. Specifically, part two of the validation of the IBNR is insufficient given the significance of the liability. In FY 2015, NSF performed an analysis to determine the best accrual option for FY 2016. NSF analyzed three options: Option 1 used 51 quarters of data; Option 2 used 24 quarters of data; and Option 3 used 12 quarters of data. NSF determined Option 1 was the best based on the results. Additionally, NSF officials stated that they chose Option 1 because it is an "already-audited approach from FY15 which would require no changes to our process narrative." However, we determined that the analysis did not sufficiently consider the various accrual options as the analysis improperly utilized forward-looking data.

Suggestions:

We suggest that NSF continue to strengthen the IBNR liability validation process and the controls over the IBNR liability estimate. Specifically, we suggest that NSF:

1. Expand oversight and quality control procedures relating to accrual estimates.
2. Continue to perform validations of accrual estimates and modify the accrual methodology (as necessary) to ensure that accrual methods continue to be reasonable and appropriate.
3. Maintain a record of each IBNR liability calculation for use in the accrual validations.
4. Determine to what extent pre-ACM$ data should still be considered and at what point only ACM$ data will be needed for use in the IBNR liability estimation and validation process.

3. Grants Payable

NFR 2016-FR-06: Insufficient Monitoring of Contingency Funds
(Note: This NFR is derived from the 'Monitoring of Construction Type Cooperative Agreements' significant deficiency noted in the prior year. During FY 2016, this NFR was downgraded to a management letter comment)

Background:

As of September 30, 2016, the National Science Foundation (NSF) had five open construction-type cooperative agreements (CA) aggregating approximately $803.8 million in projected award funding ($508.5 million obligated). Of the total projected award funding, $138.9 million, or 17.28% percent, represents contingency amounts for those CAs.

NSF awards CAs with both an estimated baseline budget by cost type and a separate contingency budget. The budget is further broken down into annual funding increments, with future years' funds identified as subject to the availability of funds. When a CA is awarded, an obligation is

created for the total amount of the award, including the contingency budget in accordance with the Uniform Guidance. As part of the terms and conditions of a CA, awardees are required to use the Award Cash Management Service (ACM$) system to request reimbursement for any award-related expenditures. Once the obligation is created, ACM$ allows grantees to draw down available funding.

Observation:

iTRAK cannot track contingency funds separately. In addition, NSF does not require awardees to separately track the use of contingency funds within their accounting systems. Specifically:

1. There are no accounting system controls to prevent awardees from drawing down on the contingency funds without prior NSF approval.
2. Contingency funds are commingled with the remainder of the award funds in NSF's accounting system at initial obligation. NSF relies on information provided by the awardees to track the allocation of the contingency funds to budgeted line items. However, NSF does not require awardees to separately track their contingency use and, accordingly, it cannot track the use of contingency funds to ensure that they are aligned with the awarded budgeted amounts.
3. NSF considers future years' funds to be "under the control" of NSF.

Suggestions:

We suggest that NSF:

1. Develop a method in iTRAK to segregate contingency funds from non-contingency funds in obligated amounts.
2. Implement controls in ACM$ that require NSF approval prior to drawdown of contingency funds.

4. Financial Reporting

NFR 2016-FR-07: Intragovernmental Transaction Differences (Note: This NFR is derived from the 'Intragovernmental Transactions' management letter comment noted on the table above)

Background:

Federal agencies are responsible for reporting intragovernmental transactions generated to the U.S. Department of the Treasury (Treasury) quarterly through Treasury's Government-wide Treasury Account Symbol (GTAS) Adjusted Trial Balance System website. Differences that exist as a result of intragovernmental transactions need to be resolved prior to preparing the financial statements and related footnote disclosures to eliminate the risk of misstatement.

Although the *Treasury Financial Manual* (*TFM*) provides guidance on reconciling intragovernmental differences, the Federal Government has not been effective in eliminating the unreconciled differences.

Observation:

During testing of NSF's intragovernmental activities, we identified the following weakness that, if not corrected, could result in misstatements in the financial statements and footnote disclosures. NSF had balance differences with 35 Trading Partners (TPs) with an approximate absolute value of $114.3 million in FY 2016. While NSF continues to have intragovernmental differences, these differences decreased by $74.8 million from the FY 2015 adjusted absolute value of $189.0 million.

Fiscal Year	Quarter	Amount *(in millions)*	Source
2015	4	189.0	Prior-Year NFR
2016	3	81.4	FY 2016 Q3 ITG by TP Differences Report
2016	4	114.3	FY 2016 Q4 IGT Scorecard
2016	5[A]	108.8	FY 2016 Q5 ITG by TP Differences Report

[A] *Q5 represents the Government-wide reporting period (i.e., the Closing Package) balances as of September 30.*

NSF was not able to provide explanations for the TP differences reported as of September 30, 2016.

Suggestion:

We suggest that, when unable to obtain sufficient information from TPs to reconcile intragovernmental balances, NSF follow the steps prescribed in *TFM* Volume 1, Part 2, Chapter 4700, Appendix 10 Intragovernmental Transactions Guide, updated July 2016.

5. Procurement (Contracts and Awards)

NFR 2016-FR-09: Monitoring of Cost Reimbursement Contracts and Awards (Note: This NFR is derived from the 'Monitoring of Cost Reimbursement Contracts' management letter comment noted on the table above)

Background:

Federal agencies are responsible for monitoring cost reimbursement contracts to ensure that contract costs are reasonable, allowable, and allocable. Incurred Cost Audits (ICA) are an important tool which enable management to assess a contractor's compliance with the financial terms and conditions of a contract. ICAs should be conducted when deemed necessary by the Agency based on a risk analysis of the award, and when performed should be completed in a

timely manner to identify any deficiencies and/or questioned costs. The NSF Office of Inspector General (OIG) has historically contracted for ICAs of NSF's large contracts.

Observation:

In FY 2016, NSF obligated approximately $420.6 million for contracts for the delivery of products and services. Of this amount, $180.8 million was obligated for the Antarctic Logistical Support contract, a cost reimbursement contract for which NSF has previously initiated (through the NSF OIG) annual ICAs. The NSF program office (Division of Acquisition and Cooperative Support [DACS]) has not taken action to obtain ICAs for most individual cost reimbursement contracts. When ICAs were determined to be necessary, DACS has relied on NSF OIG to obtain these audits. The NSF OIG also performed additional incurred cost audits that were not based on DACS requests, but on its own assessment of award risk.

Based on our review, we noted the following FY 2016 DCAA ICA reports were completed by the OIG:

a) CH2M Hill Constructors, Inc. – The NSF OIG contracted with DCAA to perform ICAs of CH2M for FY 2008 through FY 2010 that included NSF's United States Arctic Program (USAP) contract.
b) Booz Allen Hamilton (BAH) U.S. Consulting – The NSF OIG contracted with DCAA to perform ICAs of BAH for FY 2008 that included two contracts.
c) Associated Universities, Inc.'s (AUI) – The NSF OIG contracted with DCAA to perform ICAs of AUI for FY 2008 through FY 2013.
d) Consortium for Ocean Leadership, Inc. (COL) – The NSF OIG contracted with DCAA to perform ICAs for FY 2010 to FY 2011.
e) Raytheon Technical Service Company (RTSC), Polar Services – The NSF OIG contracted with DCAA to perform ICAs of RTSC Polar Services for FY 2001 through FY 2012.
f) National Ecological Observatory Network (NEON) – The NSF OIG contracted with DCAA to perform ICAs of NEON Management Fees for FY 2012 through FY 2014.
g) National Ecological Observatory Network (NEON) – The NSF OIG contracted with DCAA to perform ICAs of NEON's inadequate incurred cost submissions for FY 2010 and FY 2011.

Additionally, as part of our undelivered orders testing for the period ending June 30, 2016, we identified three contracts that contained undelivered orders with no activity during in the first three quarters of FY 2016. Although the obligations lacked expenditure activity for an extensive period of time (over one year), NSF had not closed out the contracts. The timely completion of audits and determination of final indirect rates would allow NSF to determine when the contract is ready for closeout and whether excess funds remain valid or should be deobligated.

Suggestions:

We suggest that NSF:

1. Develop and implement a plan to determine which contracts require ICAs.
2. Engage in a dialogue with NSF OIG to coordinate the plan to obtain ICAs for contracts as determined necessary.
3. After determining that the awards are ready for closeout including final indirect rates determinations, as applicable, ensure that funds are deobligated based on any disallowed costs for the three contracts identified during our testing and that those contracts are then closed in a timely manner

6. Information Technology

NFR 2016-IT-10: iTRAK System Security Plan (SSP) (Note: This NFR is derived from the 'iTRAK Accreditation Packages' management letter comment noted on the table above)

Observation:

The SSPs for the iTRAK system are not fully compliant with National Institute of Standards and Technology (NIST) Special Publication (SP) 800-53, Revision (Rev.) 4 controls. The iTRAK system is comprised of two Cloud Service Providers (DataPipe Government Solutions [DGS] and Accenture Federal Services [AFS]). DGS received a Federal Risk and Authorization Management Program (FedRAMP) Joint Advisory Board (JAB) Provisional Authorization to Operate (P-ATO) in October 2015 that was initiated under NIST SP 800-53 Rev. 3. After receiving the FedRAMP JAB P-ATO, DGS was required to update its SSP and controls documentation to Rev. 4 within one year. Accenture's Agency SSP as well as NSF's SSP used NIST 800-53 Rev. 4, documenting the services received from DGS, including the privacy controls, per FedRAMP guidance. However, DGS has not yet fully implemented its assessment and updates relating to Plan of Action and Milestones (POA&M) controls per NIST 800-53 Rev. 4.

The predecessor auditors recommended that NSF ensure that the iTRAK SSP be updated to comply with the requirements of the NIST SP 800-53, Rev. 4. Specifically, controls related to privacy, configuration management (CM), and POA&M were not addressed in the prior iTRAK SSP. While NSF has taken steps to update its iTRAK SSP for privacy and configuration management controls, the revised iTRAK SSP indicated that the POA&M controls were "not implemented."

Suggestions:

We suggest that NSF:

1. Ensure the iTRAK SSP is aligned with current NIST SP 800-53, Rev. 4 requirements; and,
2. Ensure that Cloud Service Provider POA&Ms are updated regularly.

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NEW MANAGEMENT LETTER COMMENTS

7. Payroll

NFR 2016-FR-01: Payroll Personnel Actions

Background:

During the new hire process at the National Science Foundation (NSF), employees are required to submit several documents to Human Resources Management (HRM), including Form I-9, *Employee Eligibility Verification*. Form I-9 is used to verify the identity and employment authorization of individuals hired in the United States.

Following the new hire process, all employees are provided with Standard Form (SF)-50, *Notification of Personnel Action Form*, which is generated whenever there is a change in the employee's personnel file. This form is also used when an employee separates from the agency. Further, employees complete OF-306 (Declaration of Federal Employment) as part of its new hire process to determine the individual's suitability for employment within the Federal Government. NSF's *Onboarding and Separations Guide* mandates the actions required when an employee separates from NSF. The employee's Administrative Manager initiates the separation process with a clearance e-mail that includes the employee's name and effective date of separation. The separating employee is then required to complete NSF Form 362, *Employee Separation Clearance*. This form is used to notify appropriate directorates and offices of the employee's pending separation so that they can take steps to collect property, terminate accounts, and collect badges. Once HRM processes this action in Federal Personnel/Payroll System (FPPS), a new SF-50 is generated to document the separation.

Senior Executive Service (SES) employees who meet certain requirements are eligible to receive bonuses and awards. The SES employee's supervisor may nominate the employee for awards/bonuses. HRM processes bonus/award payments effective no later than the last pay period in the calendar year, and notifies the ADs/Office Heads of final bonus amounts so they can advise the bonus recipients.

Observation:

During testing over payroll personnel actions and SES bonus/awards, we identified the following discrepancies:

- **New Hires**
  - For 7 of the 39 employees tested, the Form I-9s had exceptions. Two forms were not properly completed/approved, one form was missing, and four were dated after yearend and approved after audit inquiry.
  - For 5 of the 39 employees tested, the OF-306s has exceptions. Four forms were not properly approved and one was missing.

- **Separations**
  - For 2 of the 39 employees tested, the NSF Form 362 was missing.
  - For 2 of 39 employees tested, the SF-50 was not processed/approved timely (approval occurred a full pay period after their separation).

- **SES Employee Awards**
  - For 4 of the 28 employees tested, personnel actions for awards were initiated and approved by the same HRM staff.

Suggestions:

We suggest that NSF:

1. Implement policies and procedures to ensure that all required forms are completed appropriately and timely and retained.
2. Develop and implement a policy that calls for the segregation of duties between the approver and processor of SES awards.

8. Financial Reporting (Disclosures)

NFR 2016-FR-02: Related Party Disclosures

Background:

NSF provides the opportunity for scientists, engineers, and educators to join NSF as temporary program directors and advisors. These "rotators" provide input during the merit review process of proposals; provide insight for new directions in the fields of science, engineering, and education; and make recommendations to support cutting-edge interdisciplinary research. Rotators can come to NSF under multiple mechanisms. The largest number come on Intergovernmental Personnel Act (IPA) assignments, in which they are assigned for up to four years while remaining employees of their home institutions. Rotators serve in various positions throughout NSF, and as of July 2016, IPAs led 5 of NSF's 7 science directorates and 22 (of 30) divisions[1].

All rotators are subject to criminal conflict of interest statutes, as well as the Government-wide Standards of Ethical Conduct of Employees of the Executive Branch, which prohibit them from participating in NSF proposals and awards affecting themselves and their home institutions. While rotators are subject to policies that are designed to prevent the occurrence of any conflicts of interest, some rotators do participate in the policy decisions of the agency. NSF facilitates rotator assignments through grants to the rotator's home institution as a whole or partial reimbursement for the institution's salary and benefits payments to its employee. In some

[1] As noted in the OIG's Memorandum "Management Challenges for NSF in FY 2017."

instances, NSF may also make other awards to rotators' home institutions through its normal course of business, which includes the merit review process.

The Federal Accounting Standards Advisory Board (FASAB) issued Statement of Federal Financial Accounting Standards (SFFAS) No. 47, *Reporting Entity*, to address related parties in the Federal Government. Specifically, SFFAS No. 47 states that participation in the policy decisions of an agency leads to the creation of a related party, and does not include any language that restricts agencies from reporting related parties. In addition, SFFAS No. 47 states that "judgment will also be required to identify relationships that warrant disclosure." However, SFFAS No. 47 becomes effective for periods beginning after September 30, 2017, and does not permit earlier implementation. Therefore, until fiscal year (FY) 2018, Government entities follow the Financial Accounting Standards Board (FASB) Financial Accounting Standard (FAS) No. 57, *Related Party Disclosures*, which provides examples of related party transactions and requires the disclosure of material related party transactions. Although FASAB states[2] that "the related party guidance was not readily adaptable to the federal government," it does not preclude an agency from using FAS No. 57 as guidance on reporting.

Observation:

While Note 13 to NSF's financial statements discloses NSF's relationship to the home institutions of National Science Board (NSB)[3] members as "affiliated parties," the note does not include any information about NSF rotators and, thus, is not fully transparent.

In addition, NSF discloses awards made (i.e., obligations) to the home institutions of members of NSB. However, NSF does not disclose awards made in the prior year, as recommended in FAS No. 57.

Suggestions:

We suggest that NSF:

1. Include a disclosure in the financial statements describing the relationship between NSF and rotators.
2. Update the footnotes to include disclosures about rotators in the Awards to Affiliated Institutions (Note 13 in FY 2016). The disclosure should include, at a minimum, the overall dollar amount awarded to the rotators' home institutions in the current and prior FYs and a description of the nature of the relationship.
3. Include, in the disclosure for awards to affiliated parties, the amount awarded to NSB members' home institutions in the prior FY.

[2] SFFAS 39, *Subsequent Events: Codification of Accounting and Financial Reporting Standards Contained in the AICPA Statements on Auditing Standards*

[3] The 25 members of the National Science Board (NSB) establish the policies of NSF within the framework of applicable national policies set forth by the President and the Congress. In this capacity, the NSB identifies issues that are critical to NSF's future, approves NSF's strategic budget directions and the annual budget submission to the Office of Management and Budget, and approves new major programs and awards.

9. Property, Plant and Equipment

NFR 2016-FR-05: Personal Property Additions and Deletions

Background:

NSF acquires assets by purchase, gain-by-inventory (i.e., lost/found), transfers from another entity, or construction. NSF capitalizes general Property, Plant, and Equipment (PP&E) with an acquisition cost of $25,000 or greater and a useful life of two or more years. Depreciation of personal property is calculated based on the straight-line method using a half-year convention. NSF does not have a property sub-ledger system in its financial reporting system, iTRAK; rather, asset activity (e.g., additions, deletions, transfers, depreciation, etc.) is recorded via journal vouchers (JV) as part of the quarterly property reporting process.

NSF reports asset acquisitions at the original cost of the asset. Assets transferred to NSF from other entities are reported at an acquisition cost net of accumulated depreciation. The acquisition cost of the asset includes all costs associated with placing the asset into service (e.g., purchase cost, shipping/freight, installation costs, etc.). Based on the type of personal property acquired, a useful life is assigned to each asset to calculate and record depreciation.

NSF disposes assets internally held when equipment is beyond its useful life or lost, damaged, or no longer useful to operations or mission objectives. Assets externally held are reviewed by a NSF Property Analyst before disposal. When disposal or destruction of an asset occurs, the change in status must be documented via a Property Adjustment Documentation (PAD) form authorized by the Property Analyst.

Observation:

We performed testing over personal property additions and deletions that occurred during the period of October 1, 2015 through June 30, 2016. The personal property additions sample consisted of 16 judgmentally selected assets, composed of four internally-held assets and 12 externally-held assets. The personal property deletions sample consisted of five judgmentally selected assets, composed of three internally-held assets and two externally-held assets. We identified the following discrepancies:

- **Personal Property Additions (Internal)**
  - For 3 of the 4 additions tested, the asset was acquired during a prior year but recorded in the current-year property records. NSF recorded these additions through a prior period adjustment of $114,817. Although proper adjusting entries were made to correct the addition/accumulated depreciation, the asset additions were a result of a prior-year acquisition.
  - For 1 of the 4 additions tested, the asset addition was acquired in FY 2014. However, NSF incorrectly recorded the new asset as a current-year addition (FY 2016). As a result, the asset's accumulated depreciation was understated by $13,701.

- **Personal Property Additions (External)**
  - For 2 of the 16 additions tested, the asset was acquired during a prior year but recorded on the current-year property records. NSF recorded these additions through a prior period adjustment of $80,318. Although proper adjusting entries were made to correct the addition/accumulated depreciation, the asset additions were a result of a prior-year acquisition.
  - For 2 of the 16 additions tested, the acquisition cost did not include all costs associated with placing the asset into service (e.g., shipping/freight, actual costs, etc.). As a result, the acquisition costs were understated by $289.
  - For 1 of the 16 additions tested, NSF recorded the acquisition of a new asset based on a gain-by-inventory transaction (i.e., asset found through inventory process). However, this item was originally acquired in FY 2009 and thus was fully depreciated (with a net book value [NBV] of zero). When NSF recorded the asset as a new acquisition, it overstated the asset cost and accumulated depreciation by $46,248 and $3,469, respectively.

- **Personal Property Deletion (External)**
  - For 1 of the 2 deletions tested, the asset was improperly removed from the property records as part of the inventory process. The asset had originally been acquired in FY 2014 and remains in operating condition. As a result, the asset acquisition cost and accumulated depreciation were understated by $34,314 and $15,441, respectively.
  - For 1 of the 2 deletions tested, the asset was improperly removed from the property records as part of an upgrade process. Although the asset is fully depreciated (NBV of zero), the asset was incorrectly removed from the property records as of June 30, 2016.

Suggestions:

We suggest that NSF strengthen its oversight of its internal property acquisition and disposal activities and record keeping, and of its contractors who maintain the externally-held asset records.

10. Accounts Payable

NFR 2016-FR-08: Improper Payment Due to Duplicate Obligation

Background:

NSF follows the procurement regulations in the Federal Acquisition Regulation (FAR) to contract for goods and services. The Division of Administrative Services (DAS) handles certain administrative service purchases, such as support office equipment, professional services technical support, and audio-visual Information Technology (IT), while the Division of Acquisition and Cooperative Support (DACS) handles all other procurement actions.

Contractor Specialists (CS) or Contracting Officers (CO) initiate the requisition process after identification of a bona fide need. Division Directors and Branch Chiefs provide the final requisition approval, which commits the funding. Upon award of a contract or modification, the CO reviews and approves the action to obligate the funds in iTRAK, which creates a purchase order. As goods or services are rendered, the vendor submits an invoice to NSF for payment. It is the responsibility of the Contracting Officer's Representative (COR) to verify that the goods or services were provided in accordance with the contract/modification, as well as to record the acceptance of the goods or services in iTRAK. Lastly, the COR's acceptance of the goods or services in iTRAK triggers an approval action which initiates the disbursement process by the Cash Management Branch (CMB) within the Division of Financial Management.

The expenditures incurred, recorded, and disbursed are applied to the applicable contract or modification associated with the purchase order and requisition posted in iTRAK.

Observation:

We tested 63 statistically selected NSF expenditure transactions that occurred during the period of October 1, 2015 through June 30, 2016, and identified one discrepancy.

During July 2015, NSF authorized the creation of requisition 1017, which committed funding. The CO processed a contract modification (Mod 11) and used requisition 1017 to record a corresponding purchase order (PO) 12T6005 (PO lines 1010, 1011, 1012, 1018, and 1019) for a total of $82,006. However, the PO could not be properly linked to requisition 1017 due to an incomplete account code structure in iTRAK. Because the PO could not be linked to requisition 1017, the CO obligated the funds without an associated requisition. However, NSF did not cancel the original requisition 1017 in iTRAK. In September 2015, as part of the year-end closeout process, a second PO (PO line 1021) was created which was associated with requisition 1017 for the same amount ($82,006). This created a duplicate obligation of $82,006 in iTRAK's records.

As services were received under the contract, the COR initially applied invoices to PO lines 1010, 1011, 1012, 1018, and 1019. Once the CO posted PO line 1021, the COR did not realize it was a duplicate and applied invoices against it until this PO for $82,006 was fully liquidated Then, as additional costs were incurred, the COR liquidated these cost against the original obligation (PO line 1017). As a result, $82,006 of the September 2015 (duplicate) obligation was improperly liquidated against an invalid PO line, resulting in an improper payment in the amount of $82,006.

Suggestions:

We suggest that NSF:

1. Strengthen internal controls by performing consistent monitoring over open commitments and obligations.

2. Provide additional training and reports, as needed, to users who enter POs and receipts in iTRAK.

11. Information Technology

NFR 2016-IT-01: iTRAK Separation of Duties Review of Access

Observation:

NSF does not document its reviews to identify emerging instances of segregation of duties conflicts that could exist within the iTRAK application for existing users. NSF stated that it conducts monthly reviews; however, these reviews are not formally documented. The NSF Information Security Handbook did not describe the process or the individuals responsible for reviewing access within the iTRAK application after initial provisioning, however NSF's Division of Financial Management (DFM) had established other procedures for implementing the SOD matrix.

Suggestions:

We suggest that NSF:

1. Update its procedures to adequately document the individuals responsible for the control and process in which the control is conducted.
2. Document the monthly review of iTRAK application users' access for instances of potential segregation of duties conflicts. The documentation should include the date the review was completed and the reviewer's signature.

12. Information Technology

NFR 2016-IT-03: Incomplete Review of Service Organization Controls (SOC) Report from Interior Business Center

Observation:

NSF uses Department of the Interior's Interior Business Center's **(**IBC) webTA application to process time and attendance. IBC hosts a number of systems, including webTA, which are financially relevant to Federal agencies. IBC contracted with an Independent Public Accounting (IPA) firm to issue Service Organization Controls (SOC) reports. These reports are prepared under American Institute of Certified Public Accountants (AICPA) Standards for Attestation Engagement No. 16 (SSAE-16) to provide assurance that the information provided by the service provider is complete and accurate, and to identify risks to IBC customers. Although NSF received and reviewed the annual SSAE-16 report from IBC, NSF did not evaluate whether key

controls relating to the webTA application were included in the report. The following controls are not addressed in the webTA SSAE-16 report:

1. Identification and authentication is unique to each user (or processes acting on behalf of users) at each webTA application layer (e.g., application, database, and operating system)
2. Accounts and accounts for terminated individuals are disabled or removed at each webTA application layer (e.g., application, database and operating system)
3. Emergency or temporary access (e.g., fire call IDs) is appropriately controlled.

Suggestions:

We suggest that NSF enhance its "Assessment of Third Party Service Provider" operating procedure for reviewing SSAE-16 reports for the webTA application. At a minimum, NSF should:

1. Determine whether all key controls (as identified by NSF) have been included in the SSAE-16 report.
2. For those key controls not assessed by IBC, identify methods to mitigate the risks.
3. For those key controls that were assessed and found to be either not suitably designed or not operating effectively, gain an understanding of the root causes and identify mitigating controls.
4. Coordinate with IBC to add any key controls determined by management that are not currently in scope of the SSAE-16 examination.

13. Information Technology

NFR 2016-IT-04: Monitoring of iTRAK Configuration Controls

Observation:

NSF has known that conflicts exist related to separation of duties over the ability to both develop and implement configurations to the iTRAK production environment, but has not documented the acceptance of risk. In addition, NSF has not implemented compensating controls to prevent the migration of unauthorized changes to the iTRAK production environment. Currently, three developers and two DBAs with access to iTRAK have the ability to both design and migrate changes to the production environment. This ability to both develop and migrate changes creates a separation of duties conflict and allows for potential unauthorized activity. In addition, NSF did not formally monitoring the 15 persons who have production access and 9 persons who have developer access within the iTRAK production environment to detect unauthorized activity.

Suggestions:

We suggest that NSF mitigate the risk of unauthorized changes being implemented within the iTRAK production environment through the following actions:

1. Remove user access for job functions outside their responsibility. Specifically, users should have only either development or migration responsibility.
2. Identify and document high-risk activities for both iTRAK users and developers.
3. Implement a monitoring program over the high-risk activities. This program should include logging, aggregation, reviewing, and following-up of these activities by an independent member of the Information Technology (IT) Security team.
4. Document the monitoring program in a standard operating procedure (SOP).
5. Implement an automated tool that notifies applicable stakeholders whenever configuration management changes to iTRAK are migrated to production.

KEARNEY& COMPANY

Exhibit I – NSF Management's Response to Management Letter

OFFICE OF BUDGET, FINANCE & AWARD MANAGEMENT

MEMORANDUM

MAR 0 8 2017

To: Mark Bell, Assistant Inspector General for Audit

From: for Teresa Grancovitz
Martha A. Rubenstein, Chief Financial Officer and Head/BFA

Subject: Management Response to Draft Fiscal Year 2016 Management Letter

This memorandum responds to the transmittal of Kearney and Company's (Kearney) Draft Fiscal Year 2016 Management Letter received on March 1, 2017. We appreciate the opportunity to comment on the letter.

As previously stated during the Notice of Findings and Recommendations process, we agree with some of the recommendations to improve the National Science Foundation's operations. In other instances, we are developing alternative approaches to resolve the findings.

We would like to meet with your office and Kearney as we develop NSF's responses, to discuss certain findings and recommendations in more detail and reach a common understanding about the audit concerns. I have asked Rafael Cotto (X4304) to coordinate a meeting with your staff. We will also provide status updates on our actions with Kearney and the Office of Inspector General as part of the audit process. In the meantime, if you have any questions or require additional information, please contact Mike Wetklow, Deputy Chief Financial Officer at (703) 292-8280.

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