Description of document:	National Science Foundation (NSF) Inspector General (OIG) Fiscal Year 2019 Management Letter, 2019-2020
Requested date:	22-March-2020
Release date:	28-April-2020
Posted date:	15-June-2020
Source of document:	National Science Foundation Attn: FOIA Officer 2415 Eisenhower Avenue Alexandria, Virginia 22314 Email: foia@nsf.gov Fax: (703) 292-9041

National Science Foundation • Office of Inspector General
2415 Eisenhower Avenue, Alexandria, Virginia 22314

April 28, 2020

Via E-mail

FOIA Request No. F-20-017

On March 22, 2020 you sent request to the National Science Foundation (NSF) Office of Inspector General (OIG), seeking information under the Freedom of Information Act (FOIA), 5 USC § 552. The request has been documented as received on March 23, 2020 and has been assigned the tracking number of F-20-017.

After NSF OIG responded to the subject request on March 25, 2020, you filed a request for reconsideration. On March 26, 2020 NSF OIG agreed to reconsider the request. By way of review, your request, in your own words, seeks the following:

> *A copy of each Management Advisory, Management Advisory Memorandum, and Management Advisory Report produced by the National Science Foundation Office of Inspector General since January 1, 2017. A printout of the listing of Management Advisories, Management Advisory Memoranda, and Management Advisory Reports issued by the NSF OIG since January 1, 2010.*

As part of a request for reconsideration, NSF OIG previously provided redacted copies of four responsive records from the Office of Investigations. In this current and final response, NSF OIG is providing a redacted copy of a responsive record from the Office of Audit. Redactions applied include the following:

- (b)(4): to protect commercial information;
- (b)(5): to protect the deliberative process;
- (b)(6): to protect privacy

If you seek further assistance or wish to discuss any aspect of your request, please contact me, the OIG's FOIA Public Liaison, at (703) 292-7100 or foiaoig@nsf.gov. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact

information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road – OGIS, College Park, MD 20740-6001, e-mail at ogis@nara.gov; telephone at (202) 741-5770; toll free at 1(877) 684-6448; or facsimile at (202) 741-5769.

If you are not satisfied with the OIG's response to your request, you may administratively appeal by writing to the Counsel to the Inspector General, Kenneth Chason, Office of the Inspector General, National Science Foundation, 2415 Eisenhower Avenue, Alexandria, VA 22314. Alternatively, you may appeal directly to the General Counsel of the Foundation, at the same address.[1] Your appeal must be postmarked or electronically transmitted within 90 days from the date of this response.

Additionally, please note that Congress has excluded three discrete categories of law enforcement and national security records from the requirements of the FOIA. See 5 U.S.C. § 552(c) (2006 & Supp. IV (2010)). This response is limited to those records that are subject to the requirements of the FOIA. This is a standard notification that is given to all our requesters and should not be taken as an indication that excluded records do, or do not, exist.

Sincerely,

/s/
Elizabeth Sweetland
Assistant Counsel to the Inspector General
National Science Foundation
Office of Inspector General

Enclosures: as stated

[1] For appeals to NSF's General Counsel, note the requirements of 45 C.F.R. § 612.9(a): "You must make your appeal in writing and it must be received by the Office of the General Counsel within ten days of the receipt of the denial (weekends, legal holidays, and the date of receipt excluded). Note that this 10-day time period has been superseded by recent legislation enacting a 90-day time period, referenced above. Clearly mark your appeal letter and the envelope 'Freedom of Information Act Appeal.' Your appeal letter must include a copy of your written request and the denial together with any written argument you wish to submit."

National Science Foundation • Office of Inspector General
2415 Eisenhower Avenue, Alexandria, Virginia 22314

MEMORANDUM

DATE: January 9, 2020

TO: Dr. France A. Córdova
Director
National Science Foundation

Teresa Grancorvitz
Office Head and Chief Financial Officer
Office of Budget, Finance, and Award Management

FROM: (b) (6)
for Mark Bell
Assistant Inspector General
Office of Audits

SUBJECT: National Science Foundation Fiscal Year 2019 Management Letter

This memorandum transmits the National Science Foundation (NSF) fiscal year (FY) 2019 Management Letter prepared by Kearney & Company, P.C. (Kearney). The letter includes observations and suggestions identified during the FY 2019 audit of NSF's financial statements (six new observations and two modified repeat observations) that were not considered to be significant deficiencies in FY 2019. Two additional observations that were identified in the FY 2018 letter have been closed. As part of the FY 2019 financial statement audit, Kearney also assessed information technology (IT) controls over financial reporting. The letter includes six new observations and suggestions related to IT. Both IT deficiencies identified in the FY 2018 letter have been closed. A draft of this report was previously submitted to your staff for comment and their comments were considered in preparing this final report.

We will not be tracking the corrective actions to this report separately, therefore, we are not requesting a corrective action plan. However, Kearney will be following up on these issues during the FY 2020 financial statement audit process.

We thank your staff for the assistance that was extended to Kearney and us during this audit. If you have any questions, please contact Laura Rainey, Director, Financial and IT Audits, at 703.292.7100 or OIGpublicaffairs@nsf.gov.

Attachment

cc:

Anneila Sargent	Mary Lou Tillotson	Janis Coughlin-Piester	Catherine Walters
Diane Souvaine	John McCarthy	Allison Lerner	Laura Rainey
John Veysey	Dan Hofherr	Lisa Vonder Haar	Heather Gallagher
Ann Bushmiller	Rafael Cotto	Ken Chason	Melissa Prunchak
Christina Sarris	Mike Wetklow	Dan Buchtel	Jennifer Kendrick
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KEARNEY& COMPANY

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MANAGEMENT LETTER

To the Director and Inspector General of the National Science Foundation

In planning and performing our audit of the National Science Foundation's (NSF) financial statements as of and for the year ended September 30, 2019, 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 19-03, *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 November 14, 2019, noted no material weaknesses or significant deficiencies.

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 November 14, 2019.

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

The purpose of this letter is solely to communicate other deficiencies in internal control or instances of noncompliance 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.

Alexandria, Virginia
January 9, 2020

KEARNEY& COMPANY

MANAGEMENT LETTER COMMENTS

MODIFIED REPEAT MANAGEMENT LETTER COMMENTS

During the audit of the National Science Foundation's (NSF) fiscal year (FY) 2018 financial statements, Kearney & Company, P.C. (Kearney) identified matters that were reported in a management letter. During the audit of the FY 2019 financial statements, Kearney assessed the status of the prior-year deficiencies. As described in the table below, two of the items reported in the FY 2018 Financial Management Letter were closed. Two control deficiencies reported in FY 2018 remain open and six new deficiencies were identified. The FY 2019 status for each Management Letter finding is provided in ***Table 1*** below.

Table 1: Financial – FY 2018 and FY 2019 Management Letter Findings

No.	Financial – FY 2018 and FY 2019 Management Letter Findings	Status
2018-FR-01	Insufficient Controls over Recording Internal Property Transactions	Closed
2018-FR-02	Inaccurate and Untimely Recording of External Property Transactions	Closed
2018-FR-03	Monitoring and Oversight over Undelivered Orders (UDO) Needs Improvement	Modified Repeat
2018-FR-04	Insufficient Controls over Payroll Personnel Actions and Time and Attendance	Modified Repeat
2019-FR-03	Inadequate Accounts Payable (AP) Accrual Validation Methodology	New
2019-FR-04	Internal Control Program Needs Improvement	New
2019-FR-05	Inadequate Monitoring and Oversight over Small Business Innovation Research (SBIR) UDOs	New
2019-FR-06	Construction in Progress (CIP) Accrual Process Needs Improvement	New
2019-FR-07	Internal Monitoring and Oversight over United States Antarctic Program (USAP) Property, Plant, and Equipment (PP&E)-Related Activities	New
2019-FR-08	AP Accrual Validation Testing Inaccuracies and Results	New

As part of the FY 2019 financial statement audit, Kearney also assessed the status of information technology (IT) deficiencies reported in the prior-year Management Letter. As described in ***Table 2***, both of the items reported in the FY 2018 IT Management Letter were closed. No control deficiencies reported in FY 2018 remained open and six new deficiencies were identified; their FY 2019 status is provided in ***Table 2*** below.

Table 2: IT – FY 2018 and FY 2019 Management Letter Findings

No.	IT – FY 2018 and FY 2019 Management Letter Findings	Status
2018-IT-01	NSF Account Recertification Weakness	Closed
2018-IT-02	(b) (5) New User Provisioning	Closed
2019-IT-01	(b) (5) Logging	New
2019-IT-02	(b) (5) Monitoring	New
2019-IT-03	(b) (5) Authorization	New
2019-IT-04	(b) (5) Management	New
2019-IT-05	(b) (5)	New
2019-IT-06	(b) (5) Monitoring	New

KEARNEY& COMPANY

MODIFIED REPEAT MANAGEMENT LETTER COMMENTS

1. UDOs

Notification of Finding and Recommendation (NFR) 2019-FR-01: Enhance Monitoring and Oversight over UDOs (**Note:** This NFR is related to the "Monitoring and Oversight over UDOs Needs Improvement" Management Letter comment noted in ***Table 1*** 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 a binding agreement (e.g., a contract, interagency agreement [IAA], or purchase order) to purchase goods and services. Obligations remain open until they are fully reduced by a disbursement, are deobligated, or until the appropriation funding the obligations is cancelled. The UDO balance represents the cumulative amount of orders, contracts, and other binding agreements for which 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. Invalid open UDOs include obligations that no longer require future outlays/expenditures. Based on the prior-year finding, the Division of Acquisition and Cooperative Support (DACS) developed policies and procedures to monitor, prioritize, and reduce UDO balances. On a monthly basis, DACS obtains and reviews an Open Obligations Report to identify UDO balances related to contracts and IAAs. Subsequently, using the Open Obligations Report, DACS generates a list of the highest-priority UDOs to perform additional research to determine whether outstanding obligations remain valid or if closeout is appropriate. The priority list includes four main categories (order of highest to lowest priority): Expiring Funds; Cancelling Funds; Unexpired Funds; and Expired Funds. Further, DACS focuses on the highest-dollar UDO balances within the four categories listed above to prioritize funds of highest importance of recovery to NSF (e.g., to use excess obligations to fund other NSF mission-related efforts). As a result of the procedures implemented by DACS, UDO balances were significantly reduced in the current FY.

Additionally, the Chief Financial Officer (CFO) issued a memorandum on July 23, 2019 requesting Directorates to "review and confirm Inactive, non-grant open obligation balances." This review was completed/due on November 1, 2019 for balances as of September 30, 2019.

NSF also developed and implemented policies and procedures for authorized travel-related processes to include the deobligation of excess funds. For NSF employee travel (i.e., travel authorized in Concur), deobligation of funds should occur within 90 days from the last date of the employee's travel.

As of March 31, 2019, NSF reported more than $471.8 million in non-grant-related UDOs (e.g., contracts, IAAs, travel) from annual, multi-year, and no-year appropriations. In addition to potentially invalid UDOs, this includes contracts from the previous FY that have open obligations with active periods of performance and new awards from this FY.

Finding: During FY 2018, we identified invalid open UDOs related to non-Federal obligations, specifically for contracts and travel. NSF has continued taking steps to reduce the UDO balance and prioritized its UDO reduction efforts. Although NSF implemented monitoring and oversight processes over UDOs, improvements are still needed to deobligate funds timely.

During FY 2019, we tested the validity of 22 UDOs, totaling $10.8 million, out of a population of 1,654 UDOs (at the Obligation ID/Award level), totaling $20.1 million, as of March 31, 2019. These outstanding obligations represent contracts, travel, and IAAs. ***Table 3*** represents the status of the prior and current year for each type of invalid UDOs identified:

Table 3: Invalid UDOs

Type of Obligation	NSF Office	Number of Transactions		UDO Amount	
		2018	2019	2018	2019
Non-Federal (Contracts)	DACS	1	4	$389,719	$2,625,759
Non-Federal (Travel)	Division of Administrative Services (DAS)/Directorates	4	2	$ 31,394	$ 337,239
Federal (IAAs)	DACS	0	9	$ 0	$3,953,230
Total		**5**	**15**	**$421,113**	**$6,916,228**

***Non-Federal (Contract-Related) UDOs*:** NSF contracts consisted of four procurement actions that had prolonged inactivity (i.e., 1.5 years or more have elapsed since the last day of contract expenditure activity). Although NSF is actively working to close the contracts, the remaining funds were not deobligated in a timely manner.

Non-Federal (Travel-Related) UDOs: NSF travel consisted of two travel relocation-related obligations in which all relocation expenses had been completely reimbursed. However, the remaining funds were not deobligated in a timely manner (i.e., over a year).

IAA UDOs: NSF IAAs consisted of nine IAAs/Miscellaneous Obligation Records (MOR) that had extensive inactivity (i.e., 1.5 years or more have elapsed since the last day of IAA expenditure activity). IAAs were excluded from UDO review based on NSF's UDO closeout priority procedures. Therefore, the remaining funds were not deobligated in a timely manner.

Recommendation: Kearney recommends that NSF:

1. Strengthen and reinforce policies and procedures to require and enable proper coordination and communication between applicable NSF Divisions and Program Offices (e.g., increase closeout capacity by making contract closeout a more broadly shared activity across the contracting staff and improve guidance to program offices about their role in closing UDOs).
2. Enforce UDO monitoring processes for employee relocation travel-related UDOs to

deobligate excess funds in a timely manner (i.e., within 365 days from the last start date of the employee's relocation).
3. Update NSF's UDO monitoring procedures to include "Outgoing IAAs" within the identification and prioritization processes during DACS' review of the Open Obligations Report.
4. Update NSF's UDO monitoring processes regarding the prioritization of UDO types. Prioritize high-dollar balances in the Unexpired Funds and Expired Funds UDO types, for funds that are not on a contract with an open period of performance, over small-dollar balances in the Expiring Funds and Cancelling Funds UDO types.

2. Payroll

NFR 2019-FR-02: Insufficient Oversight over Payroll Separation Actions (**Note:** This NFR is related to the "Insufficient Controls over Payroll Personnel Actions and Time and Attendance" Management Letter comment noted in ***Table 1*** above.)

Background: During the new hire process at NSF, all employees are provided a Standard Form (SF)-50, *Notification of Personnel Action Form*, which is generated whenever there is an entry in the employee's personnel file. The SF-50 is processed in Federal Personnel and Payroll System (FPPS) by Human Resource Management (HRM) and is also generated when an employee separates from the agency. NSF's *Onboarding and Separations Guide* mandates the actions required when an employee separates from NSF. The employee's Administrative Manager (AM) 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 the automated NSF Separation Clearance within myNSF, formerly known as NSF Form 362, *Employee Separation Clearance*. Once the separation clearance process is initiated by the separating employee, the appropriate directorates and offices are notified of the employee's pending separation via the myNSF system to take steps to collect NSF property, terminate accounts, and collect badges. Once the directorates/offices verify all steps have been completed, HRM processes the separation action in FPPS, generating a new SF-50 to document the separation.

Finding: During FY 2018, NSF processed personnel actions for which the required documentation/forms were incomplete, missing, or not submitted timely. Although NSF has taken steps to address these issues in FY 2019, we identified similar issues in NSF's payroll process related to separated employees, which remains a longstanding issue since it was first identified during our FY 2016 financial audit. As a result, NSF's internal controls over personnel actions still need improvement.

Population Discrepancies

During the period of October 1, 2018 through March 31, 2019, we completed reconciliations over the population of employee new hires and separations to determine completeness of the listings. We identified the following discrepancies:

- **New Hire (Population Completeness)**

  - One employee's Entrance on Duty (EOD) occurred on December 21, 2018 (Pay Period [PP]1827), during the Federal Government furlough. The employee did not log any billable hours until pay period 19/04 (February 3, 2019 to February 16, 2019). The individual worked these hours after the initial pay period in which onboarding occurred, and the FPPS system was unable to capture the individual as an onboard employee (based on current system algorithms in place, which require that billable hours must occur within the same pay period of an employee's EOD)
- **Separations (Prior-Year Personnel Actions)**
  - Four employees were processed more than one month late (spanning FYs) within the FPPS system based on the Termination Completed Date (see ***Table 4*** for detail).

Table 4 represents the separation actions that took place during FY 2018 but were not recorded until FY 2019. The following employees were not processed via FPPS to remove them from FPPS in a reasonable time period (within five business days of separation date).

Table 4: Payroll Personnel Action (Prior-Year Separations)

Payroll Personnel Action	Termination Effective Date	Termination Completed Date	Days to Process
Separated Employees			
Employee #1: Untimely termination/personnel action	09/5/2018	10/26/2018	51
Employee #2: Untimely termination/personnel action	09/29/2018	10/30/2018	31
Employee #3: Untimely termination/personnel action.	09/28/2018	10/30/2018	32
Employee #4: Untimely termination/personnel action	09/14/2018	04/10/2019	208

Testing Discrepancies

We tested 32 separation actions selected in a random sample from the population of separations for internal control testing. During testing, Kearney identified the following discrepancies:

- Three employees were processed over two pay periods late within the FPPS system based on the Terminated Completed Date (see ***Table 5*** for details)
- Four employees' separation clearance actions were completed/approved (e.g., clearance form, return Personal Identity Verification [PIV]/badge, return equipment) over one month after the employee's termination effective date (see ***Table 6*** for detail).

Table 5 represents the separation actions that were not processed via FPPS to remove the employees from FPPS in a reasonable time period (five business days of separation date):

Table 5: Payroll Personnel Action (Sample of Separation Actions)

Payroll Personnel Action	Termination Effective Date	Termination Completed Date	Days to Process
Separated Employees			
Employee #1: Untimely termination/personnel action	02/12/2019	03/04/2019	20
Employee #2: Untimely termination/personnel action	10/08/2018	10/29/2018	21
Employee #3: Untimely termination/personnel action	10/6/2018	10/30/2018	24

Table 6 represents the separation clearance actions that took place months after the employee had been separated from NSF. The following employees did not complete their separation clearance actions in a timely manner (five business days of separation date):

Table 6: Separation Clearance Action (Form, Return PIV/Badge)

Payroll Personnel Action	Termination Effective Date	Separation Clearance Date	Days to Process (Excludes furlough days)
Separated Employees			
Employee #1: Untimely separation clearance action	01/15/2019	03/06/2019	39
Employee #2: Untimely separation clearance action	01/07/2019	04/30/2019	94
Employee #3: Untimely separation clearance action	01/07/2019	03/20/2019	53
Employee #4: Untimely separation clearance action	01/07/2019	N/A*	N/A*

**Based on testing and follow-up with NSF (as of August 30, 2019), we were unable to confirm whether separation clearance action was completed/approved.*

Recommendation: Kearney recommends that NSF:

1. Enforce oversight policies and procedures to help ensure NSF personnel (e.g., supervisors and AMs) are aware of their oversight responsibilities during the new hire and separation processes. Implement a workflow process and train employees to properly track, maintain, and ensure timely completion of the required personnel actions (e.g., separations).
2. Ensure internal controls for digital processing of separation clearances are implemented in accordance with policies and procedures to submit and timely complete proper separation actions.
3. Coordinate with NSF's payroll service provider to resolve system connectivity issues that prevent linking and properly reporting an employee's new hire actions in instances for which an employee's new hire pay period date and first pay period hours logged differ.

NEW MANAGEMENT LETTER COMMENTS

3. PP&E

NFR 2019-FR-06 CIP Accrual Process Needs Improvement

Background: NSF capitalizes general PP&E with an acquisition cost of $25,000 or greater and a useful life of two or more years. NSF PP&E is classified into two categories: Internal PP&E and External PP&E. All External PP&E represents property owned by NSF but used and procured by contractors under the Antarctic Support Contract (ASC) in support of USAP. The ASC contractor procures and operates capitalized PP&E consisting of equipment, software, buildings/structures, and CIP for USAP-related mission and objectives.

NSF does not maintain a property sub-ledger system within its financial system of record (i.e., iTRAK); rather, asset activity (e.g., CIP costs) is manually recorded via journal vouchers (JV). As part of the PP&E quarterly property reporting process, the ASC contractor compiles and submits a quarterly CIP schedule to the Division of Financial Management (DFM) by the 10th day of each month following quarter-end. The CIP schedule includes relevant construction ledger costs accounted for at the project Work Breakdown Structure (WBS) level. DFM reviews the CIP schedule and performs a reconciliation between the total detailed CIP activity system downloads (e.g., Costpoint, Maximo) and the CIP Summary Worksheet for accuracy purposes. After DFM completes its review, the CIP costs are manually recorded via a JV.

As part of FY-end financial reporting activities, NSF is required to record its PP&E activity prior to October 10. As NSF has not received the applicable quarterly report from the ASC contractor, NSF records a JV as an accrual for Quarter (Q) 4 capitalized external PP&E (including CIP). NSF calculates the year-end CIP accrual by first computing an average of Q4 activity in relation to the first three quarters of activity for each of the preceding three FYs. NSF then uses the average to calculate an estimate of Q4 activity in relation to the current year's first three quarters. The Q4 CIP accrual amount is provided to the ASC contractor for review and input from the Project Managers (PM). If the ASC contractor provides a more accurate estimate (based on its records), NSF records the contractor's estimate as the CIP accrual.

Finding: NSF initially recorded approximately $8.6 million as its FY 2019 Q4 CIP accrual based on information provided by the ASC contractor during the year-end process. During FY 2020 Q1, NSF conducted a post-accrual review of the Q4 CIP costs and self-identified that the accrual amount appeared less than anticipated in relation to the Q4 estimate provided by ASC. After further review and communication with ASC, NSF became aware that the Antarctic Infrastructure Modernization for Science (AIMS) CIP costs were incorrectly omitted from previous quarterly CIP Schedule submissions, beginning with FY 2018 Q4. The information provided by the ASC contractor did not include or account for CIP costs related to various AIMS and other construction WBS projects. Specifically, although the CIP Schedule included CIP project costs funded by Research and Related Activities (R&RA) appropriations, certain AIMS-related R&RA WBS were omitted from the CIP schedule. Further, the CIP Schedule fully omitted CIP costs funded through the Major Research Equipment and Facilities Construction

(MREFC) appropriations. The majority of the omitted CIP costs were related to the AIMS project, which is funded by both R&RA and MREFC appropriations.

After additional review, NSF recorded an additional CIP accrual adjustment for approximately $18.7 million. Due to the immaterial impact on the financial statements, NSF did not post a prior-year adjustment, but instead included $5.7 million of CIP costs incurred for FY 2018 Q4 as part of the total FY 2019 Q4 CIP accrual adjustment.

Recommendation: Kearney recommends that NSF:

1. Update policies and procedures to further improve its internal controls surrounding the quarterly and year-end CIP accrual processes.
2. Conduct an analysis to determine the continued reasonableness of the current CIP accrual methodology (i.e., three-year average of Q4 based on Q1 through Q3) to provide an accurate estimate of CIP costs at year-end (considering the increased activity of CIP costs related to new projects [i.e., AIMS] in recent and upcoming accounting periods). Update the methodology if determined appropriate.
3. Work with ASC to review and improve ASC policies, procedures, and internal controls over the accuracy and completeness of the ASC CIP tracking and reporting processes to NSF.

4. Internal Control

NFR 2019-FR-04 Internal Control Program Needs Improvement

Background: NSF is subject to reporting requirements of the Federal Managers' Financial Integrity Act of 1982 (FMFIA), Office of Management and Budget (OMB) Circular A-123, *Management's Responsibility for Enterprise Risk Management and Internal Control* (M-16-17), and the Government Accountability Office's (GAO) *Standards for Internal Control in the Federal Government* (also known as the Green Book). Collectively, these laws, regulatory guidance, and standards require agencies to establish effective internal controls over reporting, compliance, and operating objectives.

NSF leveraged OMB Circular A-123 and the GAO Green Book, both of which are based on the Committee of Sponsoring Organizations of the Treadway Commission's (COSO) *Internal Control – Integrated Framework* to perform its assessment of internal controls and provide related management assurances over the operating effectiveness of internal controls. NSF focused on updating its internal control program and processes to align and comply with the implementation of OMB Circular A-123 guidance (as specified in OMB Memorandum M-16-17), which emphasizes the need to integrate and coordinate risk management and strong and effective internal controls into existing business activities. NSF's Enterprise Risk Management (ERM) approach focuses on broad risk in relation to NSF's strategic plan for the objectives of strategy, operations, reporting, and compliance; while NSF's implementation of internal controls, a subset to ERM, focuses more narrowly on the achievement of FMFIA objectives (i.e.,

effectiveness and efficiency of operations; compliance with regulations and applicable laws; and reliability of financial reporting).

As part of its ERM process, NSF recently developed its first portfolio view of risk. Subsequently, NSF completed and documented risk profiles to provide an analysis of the risks NSF faces in achieving its strategic objectives and to identify appropriate responses to address significant risks. NSF leveraged OMB Circular A-123 (M-16-17) to formally develop and document a total of 10 risk profiles surrounding its strategic, operational, reporting, and compliance risks within an overarching reputational risk framework. The risk profiles were approved by the Chief Officers (CXO) Council as part of NSF's annual assurance statement process. The 10 risk profiles developed by NSF are listed below, by risk category:

- Strategic Risk – Performing an Excellent Merit Review Process; Encouraging Ethical Conduct of Research and Emerging Sciences and Security Risk; and Managing the Workforce
- Operational Risk – Overseeing Major Facility and Mid-Scale Research Infrastructure; Ensuring the Budget Supports a Balanced Portfolio of People, Tools, and Ideas; and Managing the USAP
- Financial Risk – Managing Reporting and Data Integrity Risks; and Overseeing Grant Awardees
- Compliance Risk – Assessing and Minimizing Improper Payments; and Maintaining Cybersecurity.

Finding: NSF developed and documented an internal control program that integrates and aligns its strategic objectives and risks towards an ERM focus. However, further enhancements are necessary to achieve a more effective and efficient monitoring program that addresses and mitigates internal control risks over reporting. Specifically, we identified three areas where NSF's internal control program could be improved:

- **Inadequate Alignment of USAP Risks (Risk Profile) to Specific Internal Control over Reporting:** The FY 2018 Agency Financial Report (AFR) Note 11 (Permanent Indefinite Appropriations) states that approximately $495 million of the R&RA permanent appropriation supports polar research/operations (including USAP). Further, Appendix 2A of *Inspector General [IG] Memorandum of FY 2019 Management Challenges* states that the MREFC AIMS project is an approximately $355 million endeavor. The FY 2019 FMFIA Report, dated October 22, 2019, on which the FMFIA Assurance Statement included in the AFR is based, states that "[f]inancial related data processed annually by [contractor] operated systems is not material to NSF (e.g., USAP-related PP&E net book value [NBV] is immaterial)." NSF further states that "the Office of Polar Programs' (OPP) funding profile is direct and material for financial assistance, contract and interagency agreement payments within the NSF span of internal control," in which these processes are captured through the budget, payments, and grants business processes.

During its review of USAP FY 2019 year-end activity, NSF identified an error in the CIP account balance. The $18.7 million error related to AIMS activity and required an adjustment to NSF's financial statements (i.e., adjustments to the CIP account impacted the PP&E line item and related financial statements and notes). Although NSF considered USAP to be significant from an operational risk, the size and nature of the USAP program and activities, as well as identification of the financial reporting error, conflicted with the subsequent risk assessment and determination that USAP had a low impact on external financial reporting.

Per the FY 2019 NSF FMFIA Report, NSF asserts that it achieves internal control coverage of USAP financial activity through its financial assistance program and risk profiles (i.e., Overseeing Grant Awardees Risk Profile and Overseeing Major Facility and Mid-Scale Research Infrastructure Risk Profile). However, financial risks related to USAP programs and activities (i.e., OPP, AIMS) were not identified, assessed, or evaluated through any of NSF's risk profiles. For example, the Overseeing Grant Awardees risk profile lists two summary-level risks associated with grantee oversight and internal controls over subrecipient monitoring. Although significant financial assistance funds are provided to recipients through OPP awards, the risk profile does not specifically reference any OPP-related risks.

- **Untimely Completion and Documentation of Internal Control Assessment, Evaluation, and Results:** As part of NSF's FY 2019 integrated internal control and ERM efforts, 10 risk profiles were developed and documented for the purposes of identifying significant risks, developing ratings over inherent risks (impact and likelihood), documenting risk responses, assessing residual risk, and developing additional proposed risk responses. Out of the 10 risk profiles, the Managing Reporting and Data Integrity; and Assessing and Minimizing Improper Payments risk profiles were completed, documented, and approved in July 2019. The remaining eight risk profiles were finalized and approved in October 2019 (FY 2020); thus, NSF was unable to use approved risk profiles for FY 2019 internal control assessment purposes and did not meet the OMB deadline for completion of June 3, 2019.

- **Inaccuracies Noted on Year-End Business Process Risk Questionnaires and Risk Profile:** NSF developed year-end business process risk questionnaires to assess risks within its significant business processes (e.g., Financial Reporting, Budget Management, Grants). These questionnaires were submitted to division/program subject matter experts (SME) for completion. The completed questionnaires did not include all necessary and accurate information. For example, the Internal PP&E, Procure-to-Pay (P2P), and Travel business process risk questionnaires each incorrectly stated that no prior-year deficiencies were noted during the previous external financial audit. However, during the FY 2018 financial audit, deficiencies over the improper capitalization of internal PP&E and monitoring and oversight of UDOs (invalid UDOs over contracts and travel obligations) were identified and formally issued to NSF through Kearney's NFR process.

In addition, the Overseeing Major Facility and Mid-Scale Research Infrastructure risk profile listed two main risks (Mid-Scale/Major Facility Funding is subject to fraud, waste, and abuse; and Recipient/Facility Performance does not equal scientific benefits). Risk ratings were assigned to each of the risks on a scale of one (very low) to five (very high). Both risks were listed in the risk profile as having inherent impact and likelihood ratings of two (low) and three (moderate), respectively. However, NSF inadvertently reversed the ratings for inherent impact and likelihood for both risks, so that the risk profile showed inherent impact and likelihood ratings of three (moderate) and two (low), respectively.

Recommendations: Kearney recommends that NSF:

1. Develop policies and procedures, including a timeline, for the preparation, completion and approval of all NSF risk profiles, in accordance with OMB Circular A-11 reporting requirements to allow sufficient time for the incorporation of the entity's proposed risk responses and actions within the FY.
2. Update and enhance NSF's USAP risk profile to consider and identify all significant potential risks (both non-financial and financial) to enable a more thorough assessment of risks (including inherent impact and likelihood) and implement adequate risk response and controls/monitoring activities to mitigate risks identified (consider creating a crosswalk that aligns control and monitoring activities based on identified risk and risk responses).

5. AP

NFR 2019-FR-03 Inadequate AP Accrual Validation Methodology
NFR 2019-FR-08 AP Accrual Validation Testing Inaccuracies and Results (**Note:** Kearney consolidated the two NFRs over the AP Accrual Validation Methodology and Testing Results to concisely summarize the findings and better align recommendations for Management Letter purposes.)

Background: Estimates are an important element of financial reporting under Generally Accepted Accounting Principles (GAAP). When developing estimates, entities should consider the reasonableness of the methods used to develop the estimate, relevant internal controls, assumptions underlying the estimates, and whether a change from the prior period's methods or assumptions is required. Failure to address those requirements may result in erroneous or unsubstantiated estimated amounts. A common financial reporting estimate is the AP accrual (i.e., the amount owed for goods and services received but not yet invoiced). An AP accrual validation occurs during the subsequent year to determine whether the prior-year AP estimate and related accrued expenses were reasonably valid. NSF's AP accrual methodology utilizes historical data and trends to estimate the accrual amount at the end of the FY. NSF performs an annual AP accrual validation of its prior-year accrual estimate using invoices received in the subsequent year (FY 2019 data). The prior-year validation amount is used as an input to calculate the current year's AP accrual estimate. In performing the annual validation, NSF takes the validation results into consideration, and modifies the methodology as necessary. Due to the FY

2018 accrual validation results, which yielded higher than usual variances to the actuals as in previous years, NSF analyzed the data and reviewed and modified its AP accrual methodology for FY 2019. NSF updated its methodology from a five-year to a three-year historical average to compute the AP accrual estimate, which was more indicative of future trends since the implementation of the Invoice Processing Platform (IPP) in FY 2017.

NSF breaks out its expenditures into two main data sets: invoices directly received through the IPP and manual invoices directly recorded in its financial system (iTRAK). For expenditures received through IPP, NSF performs a summary-level analysis that uses the goods and services received date (GSRD) field to determine whether current-year invoices accepted and paid were related to prior or current-year expenses. Any invoices that include a prior-year GSRD (September 30 or prior) are considered prior-year expenditures and are used to compute the prior-year (FY 2018) percentage rate and validation amount. Furthermore, since invoices received through IPP have a GSRD field and manual invoices that are directly recorded in iTRAK do not, NSF computes a percentage of prior-year invoices for IPP data and applies that same percentage to the manual invoices (i.e., non-IPP) data set and adds to the IPP validation results to validate the total AP accrual estimate (i.e., IPP and manual).

NSF reported an AP accrual of approximately $56.3 million in FY 2018. NSF conducted its preliminary FY 2018 AP accrual validation process as of April 30, 2019. NSF determined that 15.88% of IPP expenditures related to prior-year liabilities and applied this calculation to non-IPP amounts to determine an actual AP validation amount for FY 2018 of approximately $74.2 million.

Finding: During our review of NSF's FY 2019 AP accrual validation methodology and results, specifically of its analyses over its two expenditure data sets (IPP and manual [non-IPP] invoices), we noted the following deficiencies:

- **Validation Transactional Testing Not Performed:** NSF did not perform AP accrual validation testing at the transaction level over either of the two expenditure data sets (invoices directly from IPP and manual [non-IPP] invoices) to adequately determine whether the GSRD or the Service Dates reflect when the expenses were incurred and accepted by NSF. The use of the GSRD vs. Service Dates fields determines whether paid invoices were related to a prior-year expenditure or a current-year expenditure
- **Incorrect Reliance on GSRD Data Field for IPP Expenditures:** NSF relied on the GSRD data field within IPP to determine whether a paid invoice related to a prior-year or current-year expenditure. However, the GSRD data field did not always align with the timing of when expenses were incurred, as described by the Service Date data fields. Specifically, for 12 IPP invoices of 105 invoices we tested, the GSRD data field did not appropriately reflect when expenditures were incurred (i.e., the IPP GSRD noted a current-year [i.e., FY 2019] expenditure, while supporting documentation (i.e., IPP screenshots, invoices) noted a prior-year [i.e., FY 2018] expenditure)
- **Inappropriate Use of IPP Data Results for Non-IPP Expenditures:** NSF used the IPP validation rate (i.e., percentage of FY 2019 invoices received related to good and services delivered or incurred on FY 2018) directly for the manual invoice expenditure data sets

(i.e., non-IPP invoices). Additionally, NSF did not perform analytical testing procedures to substantiate the manual invoice data sets (i.e., non-IPP invoices) to verify that validation results were similar to IPP-related expenditure data sets.

Further, Kearney tested NSF's FY 2018 AP accrual validation by analyzing and testing four separate expense categories (IPP, SBIR, Federal payment, and non-Federal miscellaneous). Test results identified the following:

- **IPP Test Results:** NSF had a population of 2,049 IPP invoices totaling $275.2 million as of April 30, 2019, of which 103 transactions totaling $188.1 million were selected for testing. Of the 103 transactions, 30 transactions indicated the "Services Date From/To" data field was related to prior-year (FY 2018) expenses totaling $37.8 million. Of the 30 transactions noted, eight transactions had a different GSRD than the Service Date From/To data fields, resulting in a discrepancy between when the expenses were incurred and when NSF recognizes the liability (i.e., prior-year vs. current-year)
- **SBIR Awards (Manual [Non-IPP] invoices) Test Results:** NSF had a population of 1,264 SBIR expenditures totaling $107.4 million as of April 30, 2019, of which 75 transactions totaling $6.6 million were selected for testing. Of the 75 transactions, six transactions were related to prior-year expenses (FY 2018) totaling $590,400. Additionally, 16 transactions were related to advances/prepayments (i.e., SBIR advance payment made at the beginning of the award) totaling $2.3 million. The advance/ prepayment transactions should not have been included within NSF's AP accrual validation expenditure population, as these transactions represented an asset rather than a liability
- **Federal Payment (Manual [Non-IPP] Invoices) Test Results:** NSF had a population of 867 Intra-Governmental Payment and Collection (IPAC) transactions totaling $64.3 million as of April 30, 2019, of which 49 Federal transactions (i.e., IPACs) totaling $42.1 million were selected for testing. Of the 49 transactions, eight transactions were related to prior-year (FY 2018) expenses totaling $2.4 million
- **Non-Federal (Travel, Miscellaneous, Other) Test Results:** NSF had a population of 34,746 non-Federal other transactions totaling $20.1 million as of April 30, 2019, of which 41 transactions totaling $1.65 million were selected for tested. Of the 41 transactions, seven transactions were related to prior-year (FY 2018) expenses totaling $36.3 thousand.

Recommendation: Kearney recommends that NSF:

1. Expand oversight and quality control (QC) procedures for the AP accrual validation by performing an analysis of IPP data fields to ensure NSF uses the most accurate data available to properly determine whether expenditures were incurred during the prior or current year.
2. Review and expand AP accrual validation procedures over manual invoice (i.e., non-IPP) expenditures for process improvements to accurately assess the timing of manual invoice expenditures and calculate validation totals.
3. Update policies and procedures over the AP accrual estimate and validation process, as

appropriate, to ensure that accrual methods are reasonable, appropriate, and accurately reflect accurate validation totals.

4. Perform additional analysis and/or procedures of SBIR expenditures to ensure proper accrual treatment.

6. PP&E

NFR 2019-FR-07 Insufficient Monitoring and Oversight over USAP PP&E-Related Activities

Background: NSF manages and funds USAP through the OPP. Contractors carry out USAP support missions through the ASC. Under these contractual agreements, contractors request and purchase capital equipment on behalf of NSF to perform their agreed-upon duties and responsibilities. These contractors also monitor and perform the day-to-day activities necessary to support USAP objectives. Although contractors procure and manage the capital equipment, NSF retains ownership of these assets, as well as oversight responsibility for the program. Quarterly, contractors provide NSF with capital equipment activity (e.g., additions, deletions, transfers, depreciation schedule).

NSF records asset additions through purchase, gain-by-inventory (i.e., lost/found), transfer from another entity, or construction. NSF capitalizes general PP&E with an acquisition cost of $25,000 or greater and a useful life of two or more years. Depreciation of property is calculated based on the straight-line method using a half-year convention. The ASC contractor utilizes an enterprise asset management system (i.e., Maximo) to record asset purchases and to document the existence of all USAP property (capital and accountable). The contractor also uses the Maximo ledger to develop the roll-forward, which is then reviewed by NSF's DFM. As NSF does not have a property sub-ledger system in its financial reporting system (i.e., iTRAK), asset activity (e.g., additions, deletions, transfers, depreciation) is recorded via JVs as part of the quarterly property reporting process.

NSF records asset acquisitions at the original cost of the asset. Assets transferred to NSF from other entities are reported at NBV or the value assigned by the donating agency, if provided. The acquisition cost of the asset includes all costs associated with placing the asset into service (e.g., purchase cost, shipping/freight, installation costs). Based on the type of property acquired, a useful life is assigned to each asset to calculate and record depreciation.

NSF disposes of assets when they are lost, damaged, or no longer useful to operations or mission objectives. When disposal of an asset occurs, this must be documented via a Property Adjustment Document (PAD) form and the OPP Capital Property Certificate of Disposal Form. Additionally, the disposal is recorded by ASC in the Maximo system and recorded on the NSF roll-forward.

As part of the FY 2019 audit, Kearney conducted site visits to McMurdo and South Pole stations in Antarctica and the ASC contractor's Headquarters (HQ) in Denver, CO. As part of the site visits, Kearney conducted general inquiries of the PP&E process and both completeness (floor-to-book) and existence (book-to-floor) testing of PP&E.

Finding: Issues were identified with NSF's real property and equipment records for USAP. Specifically:

1. Of the five real property sample items selected for existence and eight real property sample items selected for completeness in Antarctica, Kearney noted one issue related to the classification of the South Pole Station. NSF recorded all of the South Pole Station buildings as one asset, despite each section being acquired in different years and being physically separate structures. Kearney noted that the South Pole Station had an acquisition and substantial completion year of 2003, with additional building segments added in subsequent years (the most recent being 2009). As a result, Kearney noted that the cost of the assets were all included in the original acquisition line (i.e., South Pole Station [SPS] 900), thus accelerating the depreciation treatment of the assets acquired after 2003
2. Of the 12 pieces of equipment selected for capital equipment existence testing in Antarctica, Kearney was unable to view three pieces of equipment while onsite at McMurdo Station in November 2018 due to the assets being located in remote areas. As part of the original sample request in November 2018, and again as part of the site visit debrief presentation in April 2019, Kearney requested alternative documentation (i.e., photographic evidence) to show the existence of the asset (i.e., NSF Tag Numbers, clear photos). NSF provided photographic evidence of the equipment in June 2019; however, the documentation did not demonstrate existence. Therefore, Kearney requested additional photographs to show evidence of existence of the specific asset (i.e., NSF Tag Numbers). NSF requested this information from ASC; however, due to the extreme environment, additional photographs were not attainable. Therefore, Kearney was unable to confirm the equipment as NSF assets. In addition, Kearney noted that updated tag number information for a fourth asset was not recorded in Maximo or in the NSF External Property Roll Forward after the asset had received a new asset tag number
3. Of the 15 pieces of equipment selected for capital equipment completeness testing in Antarctica, Kearney noted that NSF did not maintain documentation for real property and capital equipment received from other agencies. Specifically:
    a. NSF did not document the transfer of one asset from the United States Department of the Navy (DON) that occurred in 1988. NSF provided a position paper documenting the valuation methodology used to account for the assets transferred from DON to NSF and noted that these assets are fully depreciated, meaning there was no financial impact. However, without supporting documentation, NSF is unable to support rightful ownership of the property, resulting in a rights and obligations issue
    b. NSF was unable to provide purchase documentation for one asset that was purchased from the United States Department of the Air Force (AF). The asset is fully depreciated; therefore, no financial impact was noted. However, without supporting documentation, NSF is unable to support rightful ownership of the property, resulting in a rights and obligations issue
4. Of the 18 pieces of equipment selected for capital equipment testing at the ASC contractor's location in Denver, CO, Kearney noted that NSF did not properly record the

disposal of three items in the current year. However, all three assets were fully depreciated; thus, no financial impact was noted.

In addition, Kearney noted that (b) (4) [redacted] Without the existence of compensating controls, this represents a segregation of duties issue as custody of property should be a separate function from record keeping.

Finally, within the version of Maximo utilized by NSF, there are no fields available to document the archive or disposal dates of disposed property. Further, the inventory module automatically reduces the dollar value of disposed equipment to zero.

Recommendation: Kearney recommends that NSF:

1. Conduct actions to record assets at a sufficiently detailed level to allow for the proper classification and accounting treatment of the South Pole Station within the NSF property and financial records.
2. Enforce the implementation of the new OPP PP&E Transfer Process with DAS Standard Operating Procedure (SOP).
3. Develop policies and procedures to implement segregation of duties over asset lifecycle activities or develop compensating controls to mitigate any segregation of duties risks
4. Direct the ASC contractor to update Maximo to include sufficient fields to document the disposal/archive dates and supporting documentation of disposed assets.
5. Update policies and procedures to require the timely recording of any asset changes within Maximo and NSF's property records.
6. Strengthen and enforce policies and procedures over the timely reporting of disposal for capital equipment deletions by requiring annual trainings over the disposal process.

7. Grants

NFR 2019-FR-05 Inadequate Monitoring and Oversight over SBIR UDOs

Background: Obligations are definite commitments that will result in outlays, immediately or in the future. NSF records obligations within its awards and financial management systems, resulting in a binding agreement with an awardee (i.e., Award Notice Letter). Obligations remain open until they are fully expended by a disbursement (i.e., drawdown), are deobligated, or until the appropriation funding the obligations is cancelled. The UDO balance represents the cumulative amount of awards for which payment has not yet been made. Awards are the primary mechanism for NSF to support its mission and objectives, which consist of regular grants (standard/continuing), cooperative agreements, fellowships, and SBIRs. SBIRs support startups

and small businesses in the creation of innovative, disruptive technologies, getting discoveries out of the lab and into the market.[1]

Agencies should maintain policies, procedures, and information systems to ensure that UDOs continue to represent required future Federal outlays. The DFM is responsible for the financial closeout of an award. The Division of Grants and Agreements (DGA) is primarily responsible for the monitoring and oversight of financial assistance awards, as well as the administrative closeout of an award. Awards are considered eligible for closeout after the award expiration date or end of period of performance. After an award reaches 120 days or greater from the award end date, the award is financially closed (funds are automatically deobligated) in iTRAK and the awardee is no longer able to access the Award Cash Management $ervice (ACM$) for payment drawdowns. This process applies to all awards except for SBIR awards. Unlike other awards, SBIR awards are not automatically financially closed until all funds have been drawn down, regardless of the award's end date. In addition, unlike other awards, SBIR award funds are obligated but not made available for drawdown by the grantee until milestones are met, due to the fixed price nature of the award instrument.

As part of its award monitoring processes, DFM also tracks all award financial closeout activity using a Daily Financial Award Close Report, which is submitted to DFM Grants Cash Management Section (GCMS) for review. The report lists the number of grants selected for financial closeout, the number of grants closed, and the total number of grants that remain open.

Finding: We tested the validity of 22 award UDOs, totaling $8.9 million, out of a population of 254 UDOs (at the Obligation ID/Award level), totaling $16.3 million, as of June 30, 2019. Kearney focused our testing on those UDOs that had no award disbursement/drawdown activity from June 30, 2017 to June 30, 2019 because we considered these awards to be at a higher risk for invalidity.

We identified seven SBIR awards totaling $3.1 million that had not been deobligated in a timely manner. Award efforts for the seven awards had either been completed or ceased, and the awards had been inactive for two or more years.

Recommendation: Kearney recommends that NSF:

1. Strengthen and enforce monitoring processes over the SBIR manual closeout process to require and enable proper coordination between NSF Divisions and Program Offices. This effort should include making grant closeout a more broadly shared activity across grants management staff and improving the Office of Budget, Finance, and Award Management (BFA) guidance to program offices regarding its role in closing UDOs.
2. Implement the use of the Daily Financial Award Close Report by DGA and Program Office personnel or consider other grant closeout tools to monitor the status of SBIR awards that have exceeded the 120 days from its award end date and have UDO balances outstanding on the award for proper closeout and deobligation purposes.

[1] https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505233

8. IT

NFR IT 2019-01 (b) (5) ***Logging***

Background: The underlying (b) (5) . (b) (5) help mitigate the risk that (b) (5) controls are made to (b) (5) .

Finding: During FY 2019, NSF management did not (b) (5) as required by NSF policy.

Recommendation: Kearney recommends that NSF:

1. Deploy adequate resources in order to (b) (5) in accordance with established policies and procedures.

9. IT

NFR IT 2019-02 (b) (5) ***Monitoring***

Background: The underlying (b) (5) Periodic review and validation of service accounts help mitigate the risk that unnecessary (b) (5) exist within the (b) (5) .

Finding: NSF management did not perform (b) (5) per established policy, to validate that (b) (5) and are still required.

Recommendation: Kearney recommends that NSF:

1. Deploy adequate resources in order to perform (b) (5) (b) (5) , as required.

10. IT

NFR IT 2019-03 (b) (5) ***Identification***

Background: A basic management objective for organizational access controls is to protect the resources and data supporting operations from unauthorized access. Organizations accomplish this objective by designing and implementing a combination of both preventive (i.e., initial authorization of application access, including the documentation of this authorization) and detective (i.e., periodic revalidation of application access) controls to help mitigate the risk of unauthorized disclosure, modification, and destruction of application data.

Finding: (b) (5) [redacted]

Recommendation: Kearney recommends that NSF:

1. Develop and implement policies and procedures to (b) (5) [redacted]

11. IT

NFR IT 2019-04 (b) (5) [redacted] ***Management***

Background: (b) (5) [redacted] according to NSF policy.

Finding: NSF did not (b) (5) [redacted] in a timely manner. Specifically, (b) (5) [redacted]

Recommendation: Kearney recommends that NSF:

1. (b) (5) [redacted] policies and procedures.
2. (b) (5) [redacted] in a timely manner.

12. IT

NFR IT 2019-05 (b) (5) [redacted] ***Issues***

Background: (b) (5) [redacted] controls help mitigate the risk of (b) (5) [redacted] to the application. A combination of (b) (5) [redacted] controls help to mitigate the risk of (b) (5) [redacted].

Finding: NSF management did not follow documented (b) (5) policies and procedures. Specifically:

1. For one of eight (b) (5) selected for (b) (5) testing, the (b) (5) was assigned in error
2. For one of eight (b) (5) selected for (b) (5) testing, (b) (5) was not authorized to have (b) (5)
3. For one of 45 (b) (5) selected for testing (b) (5) contrary to NSF policies and procedures.

Recommendation: Kearney recommends that NSF:

1. Implement a periodic monitoring process to ensure that it follows established (b) (5) policies and procedures as intended. *(Findings #1* and *#2)*
2. Update the (b) (5) policies and procedures to include a recertification process for users who are on temporary detail or transferred to another department. *(Finding #3)*

13. IT

NFR IT 2019-06 (b) (5), (b) (4) ***Monitoring***

Background: Service organizations provide software, platform, and infrastructure support to user entities (i.e. customers). This support can include the operational processing of financial transactions. In some cases, the service organization will contract with another service organization (commonly referred to as a subservice organization) to perform certain processing functions, including the implementation of internal controls on behalf of the service organization. As a result, user entities, including NSF, must consider the impact of both the service organization's and the subservice organization's controls on the entity's control environment.

Finding: NSF has a process for reviewing (b) (4) reports for service organizations that provide software, platform, and infrastructure support to user entities (i.e., customers). However, (b) (5), (b) (4) During the audit, we noted the following:

1. NSF's evaluation of the (b) (4) did not include appropriate consideration of (b) (5), (b) (4) that were not tested as part of the service organization's (b) (4)
2. NSF did not adequately evaluate the (b) (5), (b) (4) performed by the (b) (4) (b) (5), (b) (4) in the absence of a (b) (4) for the (b) (5), (b) (4) in FY 2019.

Recommendation: Kearney recommends that NSF:

1. Ensure that NSF staff responsible for evaluating (b) (4) (b) (5)
2. Communicate with the (b) (5) for the (b) (4)(b) (4) and request that its (b) (5), (b) (4) (b) (4) within a timeframe that aligns with the Federal Government's FY. In the absence of a timely (b) (4) (b) (5), (b) (4), NSF should consider alternate methods to evaluate the effectiveness of (b) (5), (b) (4) (b) (5)

OFFICE OF BUDGET, FINANCE & AWARD MANAGEMENT

MEMORANDUM

Date: January 8, 2020

To: Mark Bell, Assistant Inspector General for Audit

From: (b) (6) Teresa A. Grancorvitz, Chief Financial Officer and Head/BFA

Subject: Management Response to Fiscal Year 2019 Management Letter

This memorandum responds to the transmittal of Kearney and Company's Fiscal Year 2019 Management Letter on December 19, 2019. We appreciate the opportunity to respond to the letter.

As previously stated during the Notice of Findings and Recommendations process, we generally agree with most of the recommendations to improve the National Science Foundation's operations. In some instances, we are further assessing the root causes underlying the findings so that we'll be better able to resolve them.

If you have any questions or require additional information, please contact Mike Wetklow, Deputy Chief Financial Officer at (703) 292-(b) (6)

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