

Performance Audit of Incurred Costs – Clemson University

REPORT PREPARED BY COTTON & COMPANY LLP

NATIONAL SCIENCE FOUNDATION
OFFICE OF INSPECTOR GENERAL

April 30, 2021
OIG 21-1-007





AT A GLANCE

Performance Audit of Incurred Costs – Clemson University

Report No. OIG 21-1-007

April 30, 2021

AUDIT OBJECTIVE

The National Science Foundation Office of Inspector General engaged Cotton & Company LLP (C&C) to conduct a performance audit of incurred costs at Clemson University (Clemson) for the period March 1, 2017, to February 29, 2020. The auditors tested approximately \$2.6 million of the more than \$61 million of costs claimed to NSF. The objective of the audit was to evaluate Clemson's award management environment to determine whether any further audit work was warranted, and to perform additional audit work, as determined appropriate. A full description of the audit's objective, scope, and methodology is attached to the report as Appendix C.

AUDIT RESULTS

The report highlights concerns about Clemson's compliance with certain Federal and NSF regulations, NSF award terms and conditions, and Clemson policies. The auditors questioned \$276,440 of costs claimed by Clemson during the audit period. Specifically, the auditors found \$83,248 of inappropriately applied indirect costs; \$57,318 of inappropriately allocated expenses; \$58,000 of unreasonable and unallocable computer cluster node access expenses; \$45,620 of inadequately supported expenses; \$23,689 of unallowable expenses; and \$8,565 of indirect costs over-applied to supplemental funding. The auditors also identified four compliance related findings for which there were no questioned costs: non-compliance with Federal requirements for pass-through entities; non-compliance with NSF terms and conditions; non-compliance with Clemson policies; and incorrect application of proposed indirect cost rates. C&C is responsible for the attached report and the conclusions expressed in this report. NSF OIG does not express any opinion on the conclusions presented in C&C's audit report.

RECOMMENDATIONS

The auditors included 10 findings in the report with associated recommendations for NSF to resolve the questioned costs and to ensure Clemson strengthens administrative and management controls.

AUDITEE RESPONSE

Clemson expressed varying levels of agreement and disagreement with the findings throughout the report. Clemson's response is attached in its entirety to the report as Appendix B.

FOR FURTHER INFORMATION, CONTACT US AT OIGPUBLICAFFAIRS@NSF.GOV.



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

MEMORANDUM

DATE: April 30, 2021

TO: Dale Bell
Director
Division of Institution and Award Support

Jamie French
Director
Division of Grants and Agreements



FROM: Mark Bell
Assistant Inspector General
Office of Audits

SUBJECT: Audit Report No. 21-1-007, Clemson University

This memorandum transmits the Cotton & Company LLP (C&C) report for the audit of costs charged by Clemson University (Clemson) to its sponsored agreements with the National Science Foundation during the period March 1, 2017, to February 29, 2020. The audit encompassed approximately \$2.6 million of the more than \$61 million claimed to NSF during the period. The objective of the audit was to evaluate Clemson's award management environment to determine whether any further audit work was warranted, and to perform additional audit work, as determined appropriate. A full description of the audit's objective, scope, and methodology is attached to the report as Appendix C.

Please coordinate with our office during the 6-month resolution period, as specified by Office of Management and Budget Circular A-50, to develop a mutually agreeable resolution of the audit findings. The findings should not be closed until NSF determines that all recommendations have been adequately addressed and the proposed corrective actions have been satisfactorily implemented.

OIG Oversight of the Audit

C&C is responsible for the attached auditors' report and the conclusions expressed in this report. We do not express any opinion on the conclusions presented in C&C's audit report. To fulfill our responsibilities, we:

- reviewed C&C's approach and planning of the audit;

- evaluated the qualifications and independence of the auditors;
- monitored the progress of the audit at key points;
- coordinated periodic meetings with C&C, as necessary, to discuss audit progress, findings, and recommendations;
- reviewed the audit report prepared by C&C; and
- coordinated issuance of the audit report.

We thank your staff for the assistance that was extended to the auditors during this audit. If you have any questions regarding this report, please contact Billy McCain at 703.292.7100 or OIGpublicaffairs@nsf.gov.

Attachment

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**NATIONAL SCIENCE FOUNDATION
PERFORMANCE AUDIT OF INCURRED COSTS
CLEMSON UNIVERSITY**

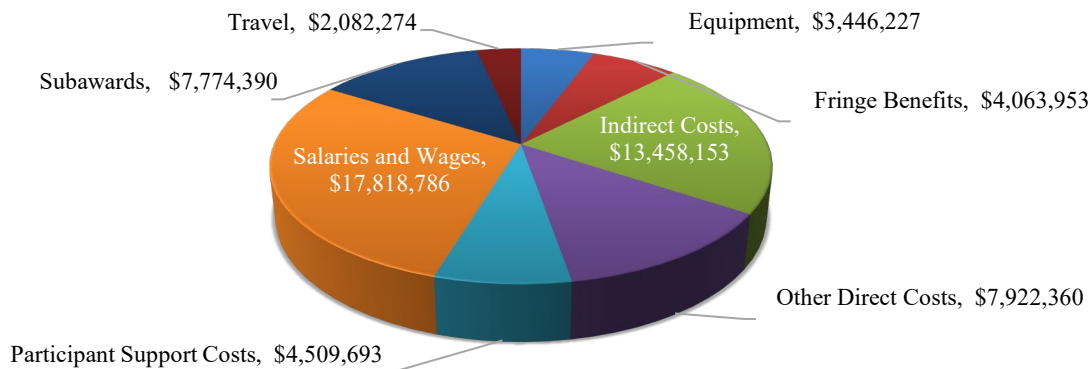
I. BACKGROUND

The National Science Foundation is an independent Federal agency created by Congress in 1950 “[t]o promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes” (Pub. L. No. 81-507). NSF is the funding source for approximately 24 percent of all federally supported basic research conducted by America’s colleges and universities. Each year, NSF supports an average of about 200,000 scientists, engineers, educators, and students at universities, laboratories, and field sites throughout the United States and the world.

Most Federal agencies have an Office of Inspector General that provides independent oversight of the agency’s programs and operations. Part of NSF OIG’s mission is to conduct audits and investigations to prevent and detect fraud, waste, and abuse. In support of this mission, NSF OIG may conduct independent and objective audits, investigations, and other reviews to promote the economy, efficiency, and effectiveness of NSF programs and operations, as well as to safeguard their integrity. NSF OIG may also hire a contractor to provide these audit services.

NSF OIG engaged Cotton & Company LLP (referred to as “we”) to conduct a performance audit of costs incurred by Clemson University (Clemson). Clemson is a public research university that reported \$106.3 million in external research funding in 2019. As illustrated in Figure 1, Clemson’s general ledger (GL) supported more than \$61 million in expenses claimed on 315 NSF awards during our audit period of performance (POP) of March 1, 2017, to February 29, 2020. Figure 1 also shows costs claimed by budget category based on the accounting data that Clemson provided.

Figure 1. Costs Claimed by NSF Budget Category, March 1, 2017, through February 29, 2020¹



Source: Auditor analysis of accounting data provided by Clemson.

¹ The total award-related expenses reported in Clemson’s GL exceeded the \$61,029,280 reported in NSF’s Award Cash Management Service (ACMS); however, because the GL data materially reconciled to NSF’s ACMS records, we determined that the GL data was appropriate for the purposes of this engagement.

This performance audit, conducted under Order No. 140D0420F0172, was designed to meet the objectives identified in the Objectives, Scope, and Methodology section of this report (Appendix C) and was conducted in accordance with *Generally Accepted Government Auditing Standards* (GAGAS), 2018 Revision, issued by the Comptroller General of the United States. We communicated the results of our audit and the related findings and recommendations to Clemson and NSF OIG. We included Clemson's response to this report in its entirety in Appendix B.

II. AUDIT RESULTS

We tested 121 transactions, which represented \$2,613,424² in costs that Clemson charged to NSF awards during the audit period, and performed additional non-transaction-based testing in four areas, as described in the Objectives, Scope, and Methodology section of this report. Based on the results of our testing, we determined that Clemson needs improved oversight of the allocation and documentation of expenses charged to NSF awards to ensure it is able to support that costs claimed are reasonable, allocable, and allowable in accordance with all Federal and NSF regulations, NSF award terms and conditions, and Clemson policies.

As a result, we identified and questioned \$276,440 of direct and indirect costs that Clemson inappropriately claimed during the audit period, including:

- \$83,248 of inappropriately applied indirect costs.
- \$57,318 of inappropriately allocated expenses.
- \$58,000 of unreasonable and unallocable computer cluster node access expenses.
- \$45,620 of inadequately supported expenses.
- \$23,689 of unallowable expenses.
- \$8,565 of indirect costs over-applied to supplemental funding.

We also identified four compliance-related findings for which we did not question any costs:

- Non-compliance with Federal requirements for pass-through entities.
- Non-compliance with NSF terms and conditions.
- Non-compliance with Clemson policies.
- Incorrect application of proposed indirect cost rates.

We provide a breakdown of the questioned costs by finding in Appendix A of this report.

Finding 1: Inappropriately Applied Indirect Costs

Clemson charged five NSF awards a total of \$83,248 in indirect costs it inappropriately applied to capital expenses, subawards, and participant support costs that it should not have accounted for as Modified Total Direct Costs (MTDCs) per Federal regulations,³ NSF Proposal and Award

² The \$2,613,424 represents the total value of the 121 transactions selected for transaction-based testing; it does not represent the dollar base of the total costs reviewed during the audit.

³ According to 2 Code of Federal Regulations (CFR) § 200.68, MTDC excludes equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs, and the portion of each subaward and subcontract that exceeds \$25,000.

Policies and Procedures Guides (PAPPGs),⁴ or Clemson's Negotiated Indirect Cost Rate Agreements (NICRAs).⁵ Specifically:

Indirect Costs Inappropriately Applied to Capital Expenditures

Clemson charged three NSF awards for \$53,763 in unallowable expenses because it inappropriately applied indirect costs to capital expenditures,⁶ as follows:

- Between March 2017 and November 2018, Clemson charged NSF Award No. [REDACTED] for \$49,814 in indirect costs assessed on \$99,628⁷ in capital expenditures that Clemson incurred to build an addition to its Ecological Center in South Carolina. Clemson stated that it was not required to capitalize expenditures related to the building because the expenditures did not meet the State of South Carolina's and Clemson University's \$100,000 capitalization threshold. Although NSF approved Clemson's project budget, which did not account for the building as a capital asset, Clemson incurred the direct costs as part of building a capital asset as defined by the Uniform Guidance, and it therefore should not have applied indirect costs to these expenses.
- In October 2017, Clemson charged NSF Award No. [REDACTED] for \$1,000 in indirect costs assessed on direct costs incurred to ship equipment that should have been capitalized as part of the asset's acquisition cost.⁸
 - *Clemson agreed to reimburse NSF for these expenses.*
- In April 2019, Clemson charged NSF Award No. [REDACTED] for \$2,949 in indirect costs assessed on direct costs incurred to purchase a \$5,671 computer that is considered a capital asset per Clemson policy.⁹
 - *Clemson agreed to reimburse NSF for these expenses.*

⁴ NSF PAPPGs 15-1, 16-1, 17-1, and 18-1, Part I, Chapter II, Section C.2.g. (viii) state that grantees should calculate indirect costs (F&A) using the approved base(s).

⁵ Clemson's NICRAs dated May 18, 2012; February 12, 2015; March 14, 2016; and May 19, 2017, which were effective during the instances identified, noted that the MTDCs exclude equipment, capital expenditures, charges for patient care, student tuition remission, rental costs for off-site facilities, scholarships and fellowships, and the portion of each subgrant and subcontract that exceeds \$25,000.

⁶ According to 2 CFR § 200.13, "capital expenditures" refers to expenditures made to acquire capital assets or expenditures to make additions, improvements, modifications, replacements, rearrangements, reinstallations, renovations, or alterations to capital assets that materially increase their value or useful life. In addition, according to 2 CFR § 200.12, "Capital assets means tangible or intangible assets used in operations having a useful life of more than year which are capitalized in accordance with Generally Accepted Accounting Principles." Capital assets include buildings (facilities) and equipment acquired by construction or purchase.

⁷ Clemson assessed the total amount for capitalization at \$87,818; however, based on our review of Clemson's GL, we identified an additional \$11,810 in expenses that Clemson should have capitalized.

⁸ According to Clemson Accounting Services - Acquisition of Equipment, if the value of the equipment purchased is equal to or greater than \$5,000, personnel should capitalize the original cost of the basic unit plus related sales tax, freight, installation, and other costs necessary to put the equipment in operation.

⁹ According to Clemson Accounting Services - Equipment, Clemson capitalizes equipment acquisitions with a unit value equal to or greater than \$5,000 as assets.

Indirect Costs Inappropriately Applied on Subawards

Clemson charged one NSF award for \$27,515 in indirect costs inappropriately applied to subaward costs in excess of \$25,000,¹⁰ as follows:

- Between February 2017 and August 2019, Clemson charged NSF Award No. [REDACTED] for \$27,515 in indirect costs assessed on \$21,171 invoiced by [REDACTED] Technical College and \$33,859 invoiced by [REDACTED] Community College that exceeded the first \$25,000 of each subaward.
 - *Clemson agreed to reimburse NSF for these expenses.*

Indirect Costs Inappropriately Applied to Participant Support Costs

Clemson charged two NSF awards for \$1,970 in unallowable expenses because it incorrectly applied indirect costs to participant support costs,¹¹ as follows:

- In July 2018, Clemson charged NSF Award No. [REDACTED] for \$1,715 in indirect costs assessed on catering expenses for participants attending a workshop.
 - *Clemson agreed to reimburse NSF for these expenses.*
- In July 2018, Clemson charged NSF Award No. [REDACTED] for \$255 in indirect costs that it erroneously assessed on participant support costs charged to an incorrect account code.
 - *Clemson agreed to reimburse NSF for these expenses.*

Clemson does not have sufficient policies and procedures or internal controls in place to effectively monitor its application of indirect costs to capital expenses, subaward expenses that exceed \$25,000, and participant support costs. We are therefore questioning \$83,248 of inappropriately applied indirect costs charged to five NSF awards. Clemson concurred with \$33,434 of the questioned costs but disagreed with \$49,814, as illustrated in Table 1.

¹⁰ Both Federal regulations and Clemson's NICRAs state that the MTDCs exclude the portion of each subgrant and subcontract that exceeds \$25,000.

¹¹ NSF PAPPGs 17-1 and 18-1, Part I, Chapter II, Section C.2.g. (v) state that indirect costs (F&A) are not allowed on participant support costs.

Table 1. Inappropriately Applied Indirect Costs

Description	NSF Award No.	Fiscal Year	Questioned Costs			
			Direct	Indirect	Total	Clemson Agreed to Reimburse
March 2017 – November 2018 Building Addition	██████	2017 – 2019	\$0	\$49,814	\$49,814	\$0
October 2017 Shipping	██████	2018	0	1,000	1,000	1,000
April 2019 Computer	██████	2019	0	2,949	2,949	2,949
February 2017 – August 2019 Subaward	██████	2017 – 2020	0	27,515	27,515	27,515
July 2018 Workshop	██████	2019	0	1,715	1,715	1,715
July 2018 Participant Meals	██████	2019	<u>0</u>	<u>255</u>	<u>255</u>	<u>255</u>
Total			<u>\$0</u>	<u>\$83,248</u>	<u>\$83,248</u>	<u>\$33,434</u>

Source: Auditor summary of identified exceptions.

Recommendations

We recommend that NSF's Director of the Division of Institution and Award Support:

1. Resolve the \$49,814 in questioned capital expenses for which Clemson has not agreed to reimburse NSF and direct Clemson to repay or otherwise remove the sustained questioned costs from its NSF awards.
2. Direct Clemson to provide documentation supporting that it has repaid or otherwise credited the \$33,434 of questioned capital expenses, subawards, and participant support costs for which it has agreed to reimburse NSF.
3. Direct Clemson to strengthen its monitoring procedures and internal control processes for applying indirect costs to Federal awards. Updated procedures could include:
 - a. Requiring that personnel assess whether Clemson should capitalize ongoing and future construction projects. Specifically, Clemson should consider Federal regulation specific to the capitalization of construction related to additions to, improvements to, alterations of, or reconfigurations of Clemson buildings when Clemson uses Federal funding to finance construction.
 - b. Requiring that personnel manually review capitalized charges made to an award to ensure that Clemson has included all applicable costs in the capitalized amount. Specifically, Clemson should consider whether capitalized costs account for items such as installation, shipping, and sales tax before capitalizing the expense.
 - c. Requiring additional training for personnel who review and approve computer charges that exceed \$5,000 to ensure that they are able to identify whether Clemson appropriately categorized the goods as supplies or equipment.

- d. Implementing an annual review process for costs charged to awards that include funding for subaward expenses that exceed \$25,000 to ensure that Clemson is appropriately segregating these expenses in accounts that it has excluded from its Modified Total Direct Cost base.
- e. Implementing an annual review process for costs charged to awards that include funding for participant support costs to ensure that Clemson is appropriately segregating these expenses in accounts that it has excluded from its Modified Total Direct Cost base.

Clemson University Response: Clemson disagreed with our conclusion regarding the allowability of \$49,814 in costs questioned on one NSF award. Specifically:

- With regard to the \$49,814 in questioned indirect costs charged to NSF Award No. [REDACTED] Clemson believes the costs should be allowable because (i) the total costs for the addition were under the \$100,000 building capitalization threshold for Clemson and the State of South Carolina, and (ii) the proposed budget included funding to support the application of indirect costs on expenses related to the addition. Clemson further stated that the expenses related to the porch addition only totaled \$87,818, and that the \$11,810 in additional expenses that the auditors identified were not related to the addition.

Auditors' Additional Comments: Our position regarding this finding has not changed. Specifically:

- With regard to the \$49,814 in questioned indirect costs charged to NSF Award No. [REDACTED] although Clemson may have followed its building capitalization policy, it incurred these costs to build a capital asset as defined by the Uniform Guidance and therefore should not have applied indirect costs to these expenses. Further, although Clemson only identified \$87,818 in costs related to the porch addition, this amount does not include \$11,810 in costs incurred for the porch's slab inspection, electrical and equipment installation for a walk-in cooler for the porch, and additional cabinetry and counter installations. We therefore believe that the \$99,628 reported in the finding is an accurate representation of the cost of the addition. As such, our position regarding this finding has not changed.

Finding 2: Inappropriately Allocated Expenses

Clemson did not always allocate expenses to NSF awards based on the relative benefits the awards received, as required by Federal¹² regulations and NSF PAPPGs.¹³ As a result, Clemson inappropriately allocated a total of \$57,318 in expenses to nine NSF awards. Specifically:

Inappropriately Allocated Equipment

Clemson inappropriately allocated \$25,104 in equipment expenses to two NSF awards, as follows:

- In January 2018, Clemson charged NSF Award No. [REDACTED] for \$8,031 in costs incurred to purchase a multi-spectral imaging camera. Although Clemson noted that the previous cameras were not performing adequately and the new camera allowed for additional research, Clemson did not receive the camera until February 13, 2018, nearly two weeks after the award's expiration date of January 31, 2018. Because the camera was not available to conduct research during the award's POP, Clemson should not have charged the cost of the camera to this award.¹⁴
- In May 2019, Clemson charged NSF Award No. [REDACTED] for \$17,073 in costs incurred to purchase a computer equipment memory upgrade. Although Clemson originally charged 100 percent of the costs to this award, in response to our audit, Clemson determined that the computer equipment was also used to benefit non-sponsored projects and that it was therefore unable to identify what portion of the memory upgrade was allocable to this award.
 - *Clemson agreed to reimburse NSF for these expenses.*

Inappropriately Allocated Travel

Clemson inappropriately allocated \$16,263 in travel expenses to three NSF awards, as follows:

- In December 2018, Clemson charged NSF Award No. [REDACTED] for \$9,797 in travel costs for the PI to travel to [REDACTED] and [REDACTED]. Although the PI incurred the airfare costs to present research papers in each location, the presentation in [REDACTED] was the only one in which the PI presented a paper that acknowledged this NSF award.

¹² According to 2 CFR 220, Appendix A, Section C.4. and 2 CFR §200.405 (a), a cost is allocable to a particular cost objective (i.e., a specific function, project, sponsored agreement, department, or the like) if the goods or services involved are chargeable or assignable to such cost objective in accordance with relative benefits received or other equitable relationship.

¹³ NSF PAPPGs 11-1 and 15-1, Part II, Chapter V, Section A and NSF PAPPGs 17-1 and 18-1, Part II, Chapter X, Section A state that grantees should ensure that all costs charged to NSF awards meet the requirements of the applicable Federal cost principles, grant terms and conditions, and any other specific requirements of both the award notice and the applicable program solicitation.

¹⁴ NSF PAPPG 17-1, Part II, Chapter X, Section A.2.c. explicitly states that a grantee should not purchase equipment/computing devices or restock materials and supplies after the award's expiration date, or in anticipation of grant expiration where there is little or no time left to use such items in the actual conduct of the research.

Because the PI presented a different paper that acknowledged a separate NSF award in [REDACTED] and [REDACTED] and lacked airline documentation to support the cost for each leg of the trip, it does not appear to have been reasonable for Clemson to allocate the \$6,192 in travel costs associated with the [REDACTED] and [REDACTED] trips to this award.

- *Clemson agreed to reimburse NSF for \$5,454 of expenses related to the travel days and airfare for the [REDACTED] and [REDACTED] portions of the trip.*¹⁵
- In May 2019, Clemson charged NSF Award No. [REDACTED] for \$7,505 in travel costs incurred to enable the PI to travel to [REDACTED] to collaborate with a research lab at the [REDACTED]. Although Clemson stated that the travel benefited the award, the budget did not include funding for a trip to [REDACTED] and the PI did not report any foreign travel or any collaborations with the [REDACTED] in the annual or final reports submitted to NSF. It therefore does not appear to have been reasonable for Clemson to allocate the cost of the travel to this award. In addition, \$3,250 of the claimed airfare was booked for a premium select fare, and Clemson did not maintain documentation to support the additional cost for the upgraded airfare.
 - *Clemson agreed to reimburse NSF for \$505 that Clemson claims represents the premium portion of the airfare.*
- In July 2019, Clemson charged NSF Award No. [REDACTED] for \$6,179 in costs incurred for the PI to travel to a workshop at a conference in [REDACTED] and for additional trips to [REDACTED] and [REDACTED]. Although the conference presentation in [REDACTED] related to research conducted under this NSF award, because the \$2,566 in costs incurred for travel to [REDACTED] and [REDACTED] did not benefit this award, Clemson should not have charged those expenses to this NSF award.
 - *Clemson agreed to reimburse NSF for these expenses.*

Inappropriately Allocated Other Direct Costs

Clemson inappropriately allocated \$8,192 in other direct costs to two NSF awards, as follows:

- In June 2017, 2 months before the award expired, Clemson charged NSF Award No. [REDACTED] for \$7,934 in costs incurred for 1 year of access to a clean room. Clemson stated that these costs were allocated to the award because it was more economical to purchase

¹⁵ The \$738 difference between the \$6,192 in questioned costs and the \$5,454 that Clemson agreed to reimburse represents the portion of the PI's round-trip airfare from [REDACTED] South Carolina to [REDACTED] with a 3-day layover in [REDACTED] that Clemson determined should be allocable to this award based on the total cost and the total miles flown. Because Clemson was unable to provide flight cost documentation from [REDACTED] Airlines identifying the cost of each leg of the round-trip airfare, Clemson calculated the attributable portion based on the total mileage. Clemson's use of mileage as a determining factor for calculating the allocable costs does not appear to be reasonable, as foreign airfare fees are higher than domestic airfare fees and mileage is not a primary factor in determining airfare costs. Because Clemson's mileage methodology is unreasonable and results in it charging NSF for more than twice the current average cost of a flight from [REDACTED] South Carolina to [REDACTED] we questioned all costs claimed for this flight.

1 years' worth of access than it was to pay month-by-month, and because Clemson used the room to re-perform research after the award expired. Although the monthly cost was lower as a result of Clemson's purchase of a full year of access, because only 2 months of lab research occurred within the award's POP, Clemson should not have charged this award for the \$6,227 in expenses associated with research performed in the lab during the 10 months after the award expired.¹⁶

- *Clemson agreed to reimburse NSF for these expenses.*
- Between August 2018 and January 2019, Clemson charged NSF Award Nos. [REDACTED] and [REDACTED] for \$15,043 in lodging costs for two graduate students, each of whom was sponsored by one of the awards. Although the two students shared the lodging equally, Clemson charged 60 percent of the lodging costs to NSF Award No. [REDACTED] and the remaining 40 percent to NSF Award No. [REDACTED]. Because the rent should have been equally allocated between the two NSF awards, Clemson inappropriately charged \$1,965 in lodging expenses to NSF Award No. [REDACTED].

- *Clemson agreed to reimburse NSF for these expenses.*¹⁷

Inappropriately Allocated Publication Costs

Clemson inappropriately allocated \$7,759 in publication costs to two NSF awards¹⁸ as follows:

- In June 2019, Clemson charged NSF Award No. [REDACTED] for \$2,809, or 100 percent, of the costs it incurred to publish a research article that acknowledged three funding sources as having contributed to the published research. In response to our request for a justification of Clemson's allocation methodology, Clemson agreed to remove the full cost of the publication and charge it to non-sponsored funding sources.
 - *Clemson agreed to reimburse NSF for these expenses.*
- In August 2019, Clemson charged NSF Award No. [REDACTED] for \$4,950, or 100 percent, of the costs it incurred to publish a research article that acknowledged three funding sources as having contributed to the research. Although this NSF award was acknowledged in the publication, we are unable to identify what portion of the publication costs are allocable to this NSF award, as Clemson did not provide a

¹⁶ The total cost of access to the clean room for two people for 1 year was \$13,000 (\$6,500 per person per year). Clemson charged the NSF award for \$7,935, or 61 percent of the total cost. The total cost of 2 months' access to the clean room for two people is \$6,200 (\$1,550 x 2 people x 2 months), \$3,784 of which is allocable to this award (\$6,200 * 61 percent). We calculated the questioned amount as follows: \$7,935 - \$3,784 = \$4,151 x 1.50 (indirect cost rate application) = \$6,227.

¹⁷ Rather than returning funds to NSF, Clemson has executed a cost transfer to ensure the total cost of the rental is allocated equally between the two awards (i.e., 50 percent each).

¹⁸ According to 2 CFR §200.461(b)(1), charges for professional journal publications are allowable where the publications report that the work was supported by the Federal government.

reasonable allocation methodology.¹⁹

- *Clemson agreed to reimburse NSF for the \$248 that Clemson claims represents the portion allocable to the other contributing awards.*

Clemson does not have proper policies and procedures or internal controls in place to ensure that it consistently allocates costs to sponsored awards based on the relative benefits that the awards receive. We are therefore questioning \$57,318 of inappropriately allocated expenses charged to nine NSF awards. Clemson concurred with \$36,847 of the questioned costs but disagreed with \$20,471, as illustrated in Table 2.

Table 2. Inappropriately Allocated Expenses

Description	NSF Award No.	Fiscal Year	Questioned Costs			
			Direct	Indirect	Total	Clemson Agreed to Reimburse
January 2018 Camera		2018	\$8,031	\$0	\$8,031	\$0
May 2019 IT Memory Upgrade		2019	17,073	0	17,073	17,073
December 2018 Travel Costs		2019	4,128	2,064	6,192	5,454
May 2019 Travel Costs		2019	5,003	2,502	7,505	505
July 2019 Travel Costs		2020	1,711	855	2,566	2,566
June 2017 Clean Room Access		2017	4,151	2,076	6,227	6,227
August 2018 – January 2019 Lodging		2019	1,310	655	1,965	1,965
June 2019 Publication		2019	1,848	961	2,809	2,809
August 2019 Publication		2020	<u>3,300</u>	<u>1,650</u>	<u>4,950</u>	<u>248</u>
Total			<u>\$46,555</u>	<u>\$10,763</u>	<u>\$57,318</u>	<u>\$36,847</u>

Source: Auditor summary of identified exceptions.

Recommendations

We recommend that NSF's Director of the Division of Institution and Award Support:

1. Resolve the \$20,471 in questioned unallocable equipment, travel, and publication expenses for which Clemson has not agreed to reimburse NSF and direct Clemson to repay or otherwise remove the sustained questioned costs from its NSF awards.

¹⁹ In response to our audit, the PI stated that 5 percent of the publication cost was allocable to the other two funding sources. Because the PI did not base this amount on the relative benefits those awards received, but instead agreed to it as the minimum disallowable amount, this allocation methodology does not appear to have been reasonable.

2. Direct Clemson to provide documentation supporting that it has repaid or otherwise credited the \$36,847 of questioned equipment, travel, other direct costs, and publication costs for which it has agreed to reimburse NSF.
3. Direct Clemson to strengthen its administrative and management controls and processes for allocating expenses to sponsored projects. Updated processes could include:
 - a. Implementing additional procedures requiring the Office of Grants and Contracts Administration to review and approve all non-salary expenses charged to NSF awards within 90 days of the award's expiration date.
 - b. Requiring Principal Investigators or other designated staff to both document and justify the allocation methodologies they used when charging expenses to sponsored projects.
 - c. Establishing a procedure to justify allocating travel expenses to specific NSF awards by confirming travel charged to an award contributes to the grant objectives.
4. Direct Clemson to encourage Principal Investigators to identify and report all award-related travel in their annual reports to NSF.
5. Direct Clemson to implement a process to ensure that personnel review the reasonableness of all employee, non-employee, and participant travel days and charges at the time of reimbursement.
6. Direct Clemson's Office of Grants and Contracts Administration to provide training on how to assess the methodology for allocating publication costs across each sponsored award acknowledged in the publication and document the justification for this methodology.

Clemson University Response: Clemson disagreed or partially disagreed with our current conclusions regarding the costs questioned on five NSF awards and with a previous conclusion regarding costs questioned on one NSF award. Specifically:

- With regard to the \$8,031 in questioned camera costs charged to NSF Award No. [REDACTED] Clemson disagreed with the finding, stating that it believes that 100 percent of the costs are allocable to this award because the purchase of the camera was necessary to complete the award's objectives after the PI determined the original camera did not perform as anticipated.
- With regard to the \$6,192 in questioned travel costs charged to NSF Award No. [REDACTED] Clemson partially agreed with the finding, stating that, although it has removed \$5,454 of the questioned costs from the award, it believes that the remaining \$738 is allocable to the NSF award. Specifically, Clemson stated that, because a portion of the trip

represented legs associated with the award-related flight to [REDACTED] \$738 of the airfare cost should be allocable to this award.²⁰

- With regard to the \$7,505 in questioned travel costs charged to NSF Award No. [REDACTED] Clemson partially agreed with the finding, stating that it has removed \$505 of the questioned amount that it associated with the premium airfare but that it believes the remaining \$7,000 in travel costs are allocable to the NSF award. Specifically, Clemson noted that the PI had not included the trip to [REDACTED] [REDACTED] in the project budget because the PI had not envisioned the collaboration at the time they submitted the proposal in early 2014, and that the exclusion of this trip from the final report was an oversight.
- With regard to the \$1,965 in questioned lodging costs charged to NSF Award No. [REDACTED] Clemson stated that it partially agreed with the finding, stating that it has processed a journal entry to reallocate the lodging expenses from NSF Award No. [REDACTED] to NSF Award No. [REDACTED]
- With regard to the \$4,950 in questioned publication costs charged to NSF Award No. [REDACTED] Clemson disagreed with the finding, stating that, although it has removed \$248 of the questioned costs, it believes the remaining \$4,702 is allocable to this award because the PI stated that personnel performed 100 percent of the research at Clemson and because personnel performed no more than 5 percent of the work activity at the other sites listed in the publication.
- Clemson also disagreed with \$5,403 in questioned maintenance costs charged to NSF Award No. [REDACTED] that are no longer questioned within the report (See Auditor's Additional Comments below). Specifically, Clemson stated that it believes 100 percent of the costs questioned should be allocable to this award because it received a no-cost extension that extended the project's POP through July 31, 2022, which is after the maintenance period expires in February 2022.

Auditors' Additional Comments: We removed one finding based on Clemson's response to the draft report; however, our position regarding the other five exceptions Clemson disagreed with has not changed. Specifically:

- With regard to the \$8,031 in questioned camera costs charged to NSF Award No. [REDACTED] although Clemson stated that the camera was necessary to perform research under the award, because Clemson did not receive the camera until after the award's expiration date, it does not appear to have been reasonable for Clemson to allocate the cost of the camera to this NSF award.
- With regard to the \$6,192 in questioned travel costs charged to NSF Award No. [REDACTED] although we acknowledge that Clemson allocated the flight leg from [REDACTED] to [REDACTED] based on the trip miles, Clemson was not able to provide a breakdown of the actual cost

²⁰ Clemson believes that \$738 of the \$7,155 flight should be allocable to NSF Award No. [REDACTED] because 1,253 miles of the 12,133 mile flight, or 10.32 percent, related to the round-trip flight from [REDACTED] South Carolina to [REDACTED] [REDACTED]

of the unallocable flight as it was unable to provide documentation identifying the cost of each leg of the round-trip airfare. Accordingly, Clemson attempted to calculate the attributable portion based on total mileage, which does not appear reasonable, as foreign airfare fees are higher than domestic airfare fees, and as mileage is not a primary factor in determining the cost of airfare. Because Clemson's mileage methodology is unreasonable and results in it charging NSF for more than twice the current average cost of a flight from [REDACTED] South Carolina to [REDACTED] [REDACTED] our position regarding this finding has not changed.

- With regard to the \$7,505 in questioned travel costs charged to NSF Award No. [REDACTED] although Clemson's response addressed why the PI did not budget for the trip or report it to NSF, because Clemson did not maintain or submit sufficient documentation to support that the trip to [REDACTED] was necessary, reasonable, or allocable to this NSF award, our position regarding this finding has not changed. Further, because Clemson did not maintain documentation to support the additional costs incurred to purchase the premium airfare, we are unable to verify that the \$505 Clemson agreed to reimburse NSF represents the costs associated with the unallowable premium airfare.
- With regard to the \$1,965 in questioned lodging costs charged to NSF Award No. [REDACTED] because Clemson agreed to process a cost transfer to ensure that it appropriately allocated the costs to NSF Award Nos. [REDACTED] and [REDACTED] our position regarding this finding has not changed.
- With regard to the \$4,950 in questioned publication costs charged to NSF Award No. [REDACTED] although the PI stated that personnel only performed 5 percent of the work related to this publication at the other sites listed in the publication, because Clemson did not maintain sufficient documentation to support that the allocation methodology was appropriate, and because this allocation methodology does not appear to have been reasonable based on the number of sources identified in the publication, our position regarding this finding has not changed.
- With regard to the \$5,403 in maintenance costs charged to NSF Award No. [REDACTED] that were previously questioned, because Clemson obtained a no-cost extension that resulted in the maintenance agreement ending during the award's POP, we have removed the exception from the report.

Finding 3: Unreasonable and Unallocable Computer Cluster Node Access Expenses

Clemson charged six NSF awards a total of \$58,000 in direct costs for expedited and priority access to its Palmetto Computer Cluster nodes. Clemson developed the Palmetto Computer Cluster node infrastructure using both its own funding and funding from NSF Award Nos. [REDACTED] and [REDACTED]. Clemson noted that it also supported the node infrastructure development project by contributing University funds, which included funds associated with fees that Clemson charged users for priority access to the cluster nodes. Although access to these

²¹ Generally, these NSF awards were intended to contribute to the growth and development of Clemson's computational infrastructure and allow for numerous NSF projects to benefit from these enhancements.

nodes is generally free, space on the cluster is limited. Therefore, to allow individuals guaranteed access at a specific time, Clemson charges a fee, which it stated is based on the size of the computer node needed. Accordingly, Principal Investigators (PIs) for six NSF awards were charged a fee to obtain access to these nodes. Although Clemson stated that the initial nodes were already in use and the charging of these fees enabled it to purchase additional nodes for the six awards to use, because NSF previously supported the development of the computer cluster node infrastructure, and because the fees charged to the NSF awards were not based on either actual usage or a schedule of rates designed to recover only the aggregate costs of the services,²² these access fees are unreasonable and unallowable.²³

Further, because the fees grant users access to the nodes for up to 4 years, we determined that \$23,672 of the \$58,000 in questioned computer node access charges were also not allocable²⁴ to the awards charged because the costs related to access that would occur after the awards expired.

Clemson developed a methodology for charging both sponsored and non-sponsored programs for access to the computer nodes that did not comply with Federal regulations. This methodology resulted in an inappropriately designed fee that was charged to NSF awards without considering the benefit to, or time remaining on, the award. Given that NSF previously contributed to the infrastructure development with the understanding that Clemson would use the infrastructure for NSF research projects, that the fee charged was not supported as appropriately developed in compliance with Federal regulations, and as the cost of the infrastructure access was not appropriately allocated to the six NSF awards, we are questioning \$58,000 of computer node infrastructure access expenses charged to six NSF awards, as illustrated in Table 3.

²² According to 2 CFR §200.468, the costs of services provided by highly complex or specialized facilities operated by the non-Federal entity, such as computing facilities, are allowable, provided that when the costs for the services are material, the non-Federal entity charges these costs directly to the applicable awards based on actual usage of the services on the basis of a schedule of rates or an established methodology that is designed to recover only the aggregate costs of the services.

²³ NSF PAPPs 15-1 and 16-1, Part II, Chapter II, Section A.1.a and NSF PAPPs 17-1, 18-1, and 19-1, Part II, Chapter VII, Section A.1.a state that grantees are responsible for conducting organization reviews to help assure that expenditures are allowable, necessary, and reasonable for the conduct of the project, and that the action represents effective use of resources.

²⁴ According to 2 CFR §200.405, *Allocable Costs*, (a), a cost is allocable to a particular cost objective (i.e., a specific function, project, sponsored agreement, department, or the like) if the goods or services involved are chargeable or assignable to such cost objective in accordance with relative benefits received or other equitable relationship.

Table 3. Unreasonable and Unallocable Computer Cluster Expenses

Description	NSF Award No.	Fiscal Year	Questioned Costs			
			Direct	Indirect	Total	Clemson Agreed to Reimburse
May 2017 Computer Cluster Node	██████	2017	\$150	\$0	\$150	\$0
June 2017 Computer Cluster Node	██████	2017	3,850	0	3,850	0
February 2018 Computer Cluster Node	██████	2018	15,000	0	15,000	0
August 2018 Computer Cluster Node	██████	2019	450	0	450	0
February 2019 Computer Cluster Node	██████	2019	15,000	0	15,000	0
March 2019 Computer Cluster Node	██████	2019	1,050	0	1,050	0
August 2019 Computer Cluster Node	██████	2020	15,000	0	15,000	0
September 2019 Computer Cluster Node	██████	2020	<u>7,500</u>	<u>0</u>	<u>7,500</u>	<u>0</u>
Total			<u>\$58,000</u>	<u>\$0</u>	<u>\$58,000</u>	<u>\$0</u>

Source: Auditor summary of identified exceptions.

Recommendations

We recommend that NSF's Director of the Division of Institution and Award Support:

1. Resolve the \$58,000 in questioned computer cluster node expenses for which Clemson has not agreed to reimburse NSF and direct Clemson to repay or otherwise remove the sustained questioned costs from its NSF awards.
2. Direct Clemson to periodically assess the fee structure and period allotted for access to the computer cluster node infrastructure. Updated procedures could include:
 - a. Requiring the Office of Grants and Contracts Administration to assess whether projects require access to the computer infrastructure.
 - b. Establishing the time and fee structure as a specialized service center to ensure appropriate cost objective control.
3. Direct Clemson to strengthen its administrative and management procedures and internal controls for allocating expenses to sponsored projects. Updated procedures could include:
 - a. Requiring the Office of Grants and Contracts Administration to provide training on allocation methodology for costs incurred on sponsored projects.

- b. Requiring Principal Investigators or other designated staff to review and justify the allocation methodologies they used when charging computer cluster node costs to sponsored projects.

Clemson University Response: Clemson disagreed with all of the costs questioned in this finding, stating that it believes the nodes purchased were necessary to perform research activities for each award. Specifically, Clemson stated that the 4-year duration was the only option available when it purchased the nodes and that it believes the costs are allocable to the NSF awards charged because access was necessary to achieve the project objectives. Further, Clemson noted that it believes the \$7,500 rate charged was appropriate because the NSF awards received 100 percent of the benefit from the purchase of the new \$21,000 computing nodes and Clemson only charged the awards 36 percent of the overall purchase price using its methodology.

Auditors' Additional Comments: Our position regarding this finding has not changed. Although Clemson noted that the 4-year duration was the only option available, because Clemson developed the \$7,500 4-year access period internally and did not base it on either actual costs incurred or a schedule of rates, Clemson could have used a different methodology that ensured it appropriately allocated the costs based on the relative benefits received. Further, although Clemson noted that NSF awards received 100 percent of the benefit of the purchase of these nodes while Clemson only charged the NSF awards for 36 percent of the costs, Clemson did not provide documentation to support (i) the \$21,000 price for the nodes, (ii) the assertion that it purchased new computer nodes each time it charged a \$7,500-based expense to NSF, or (iii) the assertion that it used the new nodes solely to benefit the NSF awards. Accordingly, our position regarding this finding has not changed.

Finding 4: Inadequately Supported Expenses

Clemson did not provide adequate documentation to support the allocability, allowability, and reasonableness of \$45,620 in expenses charged to four NSF awards during the audit period, as required under Federal regulations²⁵ and NSF PAPPGs.²⁶ Specifically:

Inadequately Supported Consultant Expenses

Clemson did not provide adequate documentation to justify the compensation rates and fees for \$30,552 in consulting expenses charged to one NSF award, as required by NSF PAPPGs,²⁷ as follows:

²⁵ According to 2 CFR §200.403, *Factors affecting allowability of costs*, for a cost to be allowable it must be adequately documented as well as necessary and reasonable for the performance of the Federal award.

²⁶ NSF PAPPG 16-1, Part II, Chapter V, Section A and NSF PAPPG 17-1, Part II, Chapter X, Section A state that grantees should ensure that costs claimed under NSF grants are necessary, reasonable, allocable, and allowable under the applicable cost principles, NSF policy, and/or the program solicitation.

²⁷ NSF PAPPG 16-1, Part I, Chapter II, Section C.2.g.vi.(c) states that anticipated services must be justified and information furnished on each individual's expertise, primary organizational affiliation, normal daily compensation rate, and number of days of expected service. Consultants' travel costs, including subsistence, may be included. If requested, the proposer must be able to justify that the proposed rate of pay is reasonable.

- In September 2018, Clemson charged NSF Award No. [REDACTED] for \$30,552 in professional fees incurred to support stakeholder alignment for the award. Although Clemson was able to provide a vendor invoice to support the amount charged, it did not provide a service agreement, consulting contract, documentation to support that it had competitively bid the services, or documentation to support that the rates included in the invoice matched the agreed-upon service rates.
 - *Clemson agreed to reimburse NSF for these expenses.*

Inadequately Supported Travel Expenses

Clemson did not provide adequate documentation to support the \$10,672 in travel costs charged to one NSF award were allowable per Federal regulations and the NSF PAPPG,²⁸ as follows:

- In July 2019, Clemson charged NSF Award No. [REDACTED] for \$10,672 in commercial airfare costs incurred to enable the PI to present research at a grant-related conference in [REDACTED]. Although Clemson provided the Oracle invoice voucher and a Chase bank statement showing a charge from United Airlines, it did not provide a receipt to support the cost of the flight and to verify that the fare related to allowable economy-class airfare.
 - *Clemson agreed to reimburse NSF for these expenses.*

Inadequately Supported Participant Support Payments

Clemson did not provide adequate documentation to support the allowability of \$2,627 in stipend costs charged to one NSF award, as follows:

- In October 2017, Clemson charged NSF Award No. [REDACTED] for a \$2,627 payment to a student participant for 132 hours of work that were not supported by a timesheet or other form of tracking documentation. Clemson claimed that it was not required to maintain a timesheet because the payment related to a participant stipend. However, because this payment was based on an hourly rate, rather than a set amount, Clemson should have maintained documentation to support the 132 hours the student was reimbursed for.

²⁸ According to 2 CFR §200.474(d), airfare costs in excess of the basic, least-expensive unrestricted accommodations class offered by commercial airlines are unallowable. The non-Federal entity must justify and document these conditions on a case-by-case basis for the use of first-class or business-class airfare to be allowable. Further, according to NSF PAPPG 16-1, Part I, Chapter II, C, 2.g.iv.(a), allowance for air travel normally will not exceed the cost of round-trip economy airfare.

Inadequately Supported Service Center Rates

Clemson did not provide adequate documentation to support the allowability of \$1,769 in service center rates charged to one NSF award as required by Federal regulations,²⁹ as follows:

- In October 2017, Clemson charged NSF Award No. [REDACTED] for \$11,579 in costs incurred to obtain RNA sequencing services from an internal service center and outside vendor. Although the costs appear to have been allocable to the award and to have aligned with the award objectives, the agreements that Clemson provided did not support \$1,769 of the amount charged.³⁰

Clemson did not have appropriate policies and procedures or internal controls in place to ensure that it requested and maintained sufficient documentation to support the allowability of direct costs that it charged to Federal awards. We were therefore unable to verify that these costs were reasonable for, allocable to, and allowable on the NSF awards charged. As a result, we are questioning \$45,620 in inadequately supported expenses charged to four NSF awards. Clemson concurred with \$41,224 of the questioned costs but disagreed with the remaining \$4,396, as illustrated in Table 4.

Table 4. Inadequately Supported Expenses

Description	NSF Award No.	Fiscal Year	Questioned Costs			
			Direct	Indirect	Total	Clemson Agreed to Reimburse
September 2018 Professional Fees	[REDACTED]	2019	\$20,100	\$10,452	\$30,552	\$30,552
July 2019 Airfare	[REDACTED]	2020	6,998	3,674	10,672	10,672
October 2017 Participant Payment	[REDACTED]	2018	2,627	0	2,627	0
October 2017 Service Center Charges	[REDACTED]	2018	<u>1,179</u>	<u>590</u>	<u>1,769</u>	<u>0</u>
Total			<u>\$30,904</u>	<u>\$14,716</u>	<u>\$45,620</u>	<u>\$41,224</u>

Source: Auditor summary of identified exceptions.

²⁹ According to 2 CFR §200.468, *Specialized Service Facilities*: “(a) The costs of services provided by highly complex or specialized facilities operated by the non-Federal entity are allowable, provided the charges for the services meet the conditions of either paragraph (b)... (b) The costs of such services, when material, must be charged directly to applicable awards based on actual usage of the services on the basis of a schedule of rates or established methodology.” Further, 2 CFR §200.302(b)(3), *Financial Management*, states records must adequately identify the source and application of funds for federally funded activities, including the information pertaining to authorizations and source documentation.

³⁰ We calculated the questioned amount as follows: \$11,579 (amount charged) - \$6,000 (amount supported by the agreement, calculated as \$300 x 20) - \$4,400 (amount supported by the agreement, calculated as \$2,200 x 2) = \$1,179 * 1.5 (indirect cost rate) = \$1,769.

Recommendations

We recommend that NSF's Director of the Division of Institution and Award Support:

1. Resolve the \$4,396 in questioned participant support and service center expenses for which Clemson has not agreed to reimburse NSF and direct Clemson to repay or otherwise remove the sustained questioned costs from its NSF awards.
2. Direct Clemson to provide documentation supporting that it has repaid or otherwise credited the \$41,224 of questioned consultant and travel costs for which it has agreed to reimburse NSF.
3. Direct Clemson to strengthen its policies and procedures related to creating and retaining documentation, including introducing additional controls to help ensure that it appropriately creates and maintains all documentation necessary to support the allowability of expenses charged to sponsored programs. Updated procedures could include:
 - a. Conducting annual training for individuals responsible for reviewing and approving consultant expenses, including training regarding what documentation Clemson must maintain to support consultant rates charged.
 - b. Establishing clear guidance regarding what documentation Clemson must maintain in cases in which an individual books their own airfare.
 - c. Establishing clear guidance as to who is required to fill out a timesheet with hours worked when they are being paid using an hourly rate. The guidance could further indicate that those who earn a stipend are exempt from the requirement to fill out a timesheet.
 - d. Establishing clear guidance regarding the specialized service facility agreements and rate documentation that Clemson must maintain. Additional guidance should include clear instructions regarding how to document service agreements, develop and bill for services using approved specialized service facility rates, and document the cost of services invoiced by outside service providers.

Clemson University Response: Clemson disagreed with our conclusions regarding the allowability of \$4,396 in costs questioned on two NSF awards. Specifically:

- With regard to the \$2,627 in questioned participant support costs charged to NSF Award No. [REDACTED] Clemson disagreed with the finding, stating that it believes the costs should be allowable because timesheets are not required to support Research Experiences for Undergraduates stipends. Specifically, Clemson noted that, although the PI used an hourly calculation to determine the stipend amount in an effort to ensure that they paid the student appropriately, Clemson does not encourage the use of timesheets for non-employee activities.

- With regard to the \$1,769 in questioned service center costs charged to NSF Award No. [REDACTED] Clemson disagreed with the finding, stating that the two services provided to the award resulted in a cost difference that favored the NSF award. Clemson's internal Genomics Institute was to deliver two services at a cost of \$290 and \$3,100 per instance, respectively. The invoice that Clemson submitted to NSF charged \$250 per instance for 20 instances of the first service. For the second service, the Genomics Institute was no longer able to perform the work requested, and Clemson was required to subcontract this portion of work. Clemson received a Statement of Work and quote for \$6,554, which was the amount that Clemson ultimately charged to the NSF award. Clemson stated that because the total cost difference for the two services resulted in savings for the government, Clemson should not be required to return funds to NSF.

Auditors' Additional Comments: Our position regarding this finding has not changed. Specifically:

- With regard to the \$2,627 in questioned stipends charged to NSF Award No. [REDACTED] although Clemson stated that it believed it did not need to maintain timesheets to support this payment because it related to a stipend, because the PI did not base the amount paid on an established stipend amount but instead calculated it based on an hourly rate and the number of hours worked, our position regarding this finding has not changed.
- With regard to the \$1,769 in questioned service center costs charged to NSF Award No. [REDACTED] as Clemson was unable to provide an invoice to support the total amount charged for the external services provided, our position regarding this finding has not changed. Specifically, because Clemson was unable to provide an invoice to support the outside sequencing services it obtained,³¹ we determined that only \$10,400 of the amount invoiced was allowable based on the service center rates included in the 2015 agreement.³²

Finding 5: Unallowable Expenses

Clemson charged 11 NSF awards a total of \$23,689 in expenses that were unallowable under Federal regulations³³ and NSF PAPPGs.³⁴ Specifically:

Unallowable Travel Expenses

³¹ Clemson was only able to provide a quote and a statement of work to support the \$6,554 charged to the award.

³² While Clemson's response referenced the 2014 rate agreement, Clemson established another agreement with the Genomics Institute in 2015 that superseded the 2014 rates. As the 2015 agreement established rates of \$300 and \$2,200 per instance for the two services invoiced, we used those rates to calculate the allowable amount. ($\$300 * 2 + \$2,200 * 2 = \$10,400$)

³³ According to 2 CFR 220, Appendix A, Sections C.2 and C.3 and 2 CFR §200.403(a), for costs to be allowable, they must be necessary and reasonable for the performance of the Federal award.

³⁴ According to NSF PAPPGs 14-1, 15-1, and 16-1, Part II, Chapter V, Section A and NSF PAPPGs 17-1, 18-1, and 19-1, Part II, Chapter X, Section A, grantees should ensure that all costs charged to NSF awards meet the requirements of the applicable Federal cost principles, grant terms and conditions, and any other specific requirements of both the award notice and the applicable program solicitation.

Clemson charged eight NSF awards a total of \$21,302 in unallowable travel expenses,³⁵ as follows:

- In December 2017, Clemson charged NSF Award No. [REDACTED] for \$1,667 in conference registration fees. Although Clemson included the conference fees in its award budget, the Clemson personnel were unexpectedly unable to attend the conference. Although Clemson noted that the personnel attempted to obtain a refund but were unable to do so, because the costs did not benefit the award, the conference registration fees are not allowable on this award.
- In March 2018, Clemson charged NSF Award No. [REDACTED] for \$2,709 in airfare costs for a flight to [REDACTED] on June 7, 2018, and a return flight from [REDACTED] on August 2, 2018. Although the PI stated that the time spent in [REDACTED] (i.e., July 27 to August 2, 2018) benefited the award, because the trip to [REDACTED] took place after the award's POP expired on June 30, 2018, the \$2,709 of airfare costs are not allowable on this award.
 - *Clemson agreed to reimburse NSF for these expenses.*
- In March 2018, Clemson charged NSF Award No. [REDACTED] for \$7,205 in travel costs incurred for a graduate student to travel to field sites. Although the purpose of the travel appears to have been allocable to the award, the charges included \$314 in unallowable travel expenses, including \$138 for an unallowable cancellation fee, \$48 for unallowable per diem, and \$128 for unallowable lodging costs.
 - *Clemson agreed to reimburse NSF for these expenses.*
- In September 2018, Clemson charged NSF Award No. [REDACTED] for \$5,994 in lodging costs for teachers attending training sessions. Clemson initially intended to ensure it selected moderately priced accommodations, as required by Clemson policies,³⁶ by providing on-campus lodging. However, because it moved the teachers' lodging off-campus Clemson charged the award for \$1,215 in unallowable lodging costs.
 - *Clemson agreed to reimburse NSF for these expenses.*

³⁵ According to 2 CFR 220, Appendix A, Section J.53 and 2 CFR §200.474, *Travel costs*: “(a) General. Travel costs are the expenses for transportation, lodging, subsistence, and related items incurred by employees who are in travel status on official business of the non-Federal entity.” In addition, 2 CFR §200.474 states, “If these costs are charged directly to the Federal award documentation must justify that: (1) Participation of the individual is necessary to the Federal award; and (2) The costs are reasonable and consistent with non-Federal entity's established travel policy.”

³⁶ According to the Clemson Employee Travel Policy and myClemson Travel Reimbursement Guidelines, Clemson will reimburse actual lodging expenses as reflected on the receipt. Further, travelers should select moderately priced accommodations when the option is available. Because Clemson does not define “moderately priced accommodations,” we calculated the questioned costs using the General Services Administration (GSA) rate for Clemson, South Carolina, as follows: \$120 (rate incurred) - \$93 (GSA rate) = \$27 * 5 nights * 9 travelers = \$1,215.

- In October 2018, Clemson charged NSF Award No. [REDACTED] for \$1,578 in costs incurred for a [REDACTED] Airlines flight to [REDACTED] that did not comply with the Fly America Act.³⁷
 - *Clemson agreed to reimburse NSF for these expenses.*³⁸
- In April 2019, Clemson charged NSF Award No. [REDACTED] for \$5,802 in costs incurred for premium airfare and did not maintain documentation to support the allowable cost for economy-class airfare.³⁹
 - *Clemson agreed to reimburse NSF for these expenses.*
- In September 2019, Clemson charged NSF Award No. [REDACTED] for \$3,892 in lodging costs for participants attending a training course in [REDACTED]. While the award budget included funding to attend this training, because the travelers did not select moderately priced accommodations, as required by Clemson policy, \$1,853 of the lodging costs are unallowable.⁴⁰
 - *Clemson agreed to reimburse NSF for these expenses.*
- In October 2019, Clemson charged NSF Award No. [REDACTED] for \$12,142 in costs incurred for a graduate student to travel to [REDACTED]. Although the purpose of the trip appears to have benefited the award charged, Clemson charged the award for \$5,417 in unallowable travel costs, including \$3,569 in premium rental car costs booked through a non-preferred rental car agency,⁴¹ \$218 for an airline change fee that did not benefit the award, and \$1,630 in excess lodging fees incurred when the traveler canceled a portion of their Airbnb rental.
 - *Clemson agreed to reimburse NSF for these expenses.*

³⁷ NSF PAPPG 15-1, Part II, Chapter VI, Section F.1.b, states, “In accordance with the Fly America Act (49 USC 40118), any air transportation to, from, between, or within a country other than the US of persons or property, the expense of which will be assisted by NSF funding, must be performed by or under a code-sharing arrangement with a US-flag air carrier if service provided by such a carrier is available (see Comptroller General Decision B-240956, dated September 25, 1991).”

³⁸ Although Clemson agreed to reimburse NSF for these expenses, it intends to charge NSF for an additional \$1,043 in allowable travel costs for expenses incurred during the same trip. Clemson had not previously claimed these expenses due to budget limitations.

³⁹ According to the Clemson Employee Travel Policy and myClemson Travel Reimbursement Guidelines, “The use of upgraded/preferred coach seating options are generally a traveler’s personal choice and therefore is a traveler’s personal expense. If travel is on a sponsored program, accommodations must be limited to tourist or economy class.”

⁴⁰ Because Clemson’s policy does not define “moderately priced accommodations,” we calculated the questioned costs using the applicable GSA rate for [REDACTED] at the time of the conference, as follows: \$3,315 (\$489 + \$362 + \$254 nightly rates charged * 3 travelers) - \$1,647 (\$183 GSA per diem * 3 travelers * 3 days) * 1.1111 (application of indirect costs) = \$1,853.

⁴¹ According to Clemson’s Employee Travel Policy, employees are required to use the University contract vendor(s) for vehicle rentals unless the contract vendor is not available at the rental location. Clemson’s Car Rental Policy defines its contract vendors as [REDACTED] and [REDACTED]. The traveler rented their vehicle from [REDACTED] at the [REDACTED] airport, where both [REDACTED] and [REDACTED] agencies were available.

- In October 2019, Clemson charged NSF Award No. [REDACTED] for \$18,459 in travel costs and other costs associated with the travel. Although the purpose of the trip appears to have benefited the award charged, Clemson charged the award for \$747 in unallowable travel costs, including \$471 in unallowable upgraded airfare, \$245 in cellular phone purchases (including a hotspot cellular phone plan, prepaid cellular phones, landlines, and headphones),⁴² and \$31 in travel insurance.⁴³
 - *Clemson has agreed to reimburse NSF for the upgraded airfare and travel insurance, for a total of \$502.*

Unallowable Participant Support Costs

Clemson charged two NSF awards for \$2,148 of unallowable participant expenses, as follows:

- In February 2017, Clemson charged NSF Award No. [REDACTED] for \$383 in costs incurred for three extra nights of lodging for conference participants, which did not benefit the award.
 - *Clemson agreed to reimburse NSF for these expenses.*
- In April 2018, Clemson used \$1,765 of participant support cost funding awarded on NSF Award No. [REDACTED] to cover employee travel.⁴⁴
 - *Clemson agreed to reimburse NSF for these expenses.*

Unallowable Salary Expenses

Clemson charged one NSF award for \$239 of unallowable salary expenses, as follows:

- From July 1, 2018, to June 30, 2019, Clemson charged NSF Award No. [REDACTED] for \$8,550 in salary paid to an employee, which exceeded the \$8,432 the employee should have received based on their Institutional Base Salary.⁴⁵ Because Clemson charged the excess salary expenses using a rate that was higher than the employee's Institutional Base

⁴² According to Clemson's Office of Sponsored Programs Frequently Asked Questions, office supplies such as local telephone services are costs that cannot be identified readily and specifically with a particular sponsored project and are therefore unallowable as direct costs.

⁴³ According to Clemson's Employee Travel Policy and myClemson Travel Reimbursement Guidelines, any expenses incurred for personal preference or convenience are considered unallowable.

⁴⁴ According to 2 CFR §200.75, "participant support costs" refers to direct costs for items such as stipends or subsistence allowances, travel allowances, and registration fees paid to or on behalf of participants or trainees (but not employees) in connection with conferences or training projects.

⁴⁵ According to 2 CFR § 200.430(h)(2), *Compensation - personal services*, charges for work performed on Federal awards by faculty members during the academic year are allowable at the Institutional Base Salary rate. In no event may charges to Federal awards, irrespective of the basis of computation, exceed the proportionate share of the Institutional Base Salary for that period.

Salary, \$239 of salaries, fringe, and indirect costs⁴⁶ charged to this award are unallowable.

Clemson does not have sufficient policies and procedures or internal controls in place to ensure that it only charges allowable expenses to NSF awards. Specifically, Clemson's procedures did not always ensure that it:

- Only charged registration fees for conferences that individuals attended.
- Removed costs associated with travel taken after the award expired from NSF awards.
- Confirmed that all travel expenses were allocable to the award charged.
- Verified that travelers booked moderately priced accommodations based on the options available.
- Followed Federal regulations, NSF PAPPs, and Clemson policy by ensuring that airfare complied with the Fly America Act.
- Maintained documentation of the difference in the cost of airfare for economy and upgraded flights.
- Ensured that personnel did not use participant support costs to cover travel costs incurred for Clemson employees.
- Did not pay employees using a rate that exceeded their Institutional Base Salary.

As a result, Clemson charged NSF awards for expenses that were unallowable under Federal, NSF, and/or Clemson policies. We are therefore questioning \$23,689 of unallowable expenses charged to 11 NSF awards. Clemson concurred with \$21,538 of the questioned costs but disagreed with the remaining \$2,151, as illustrated in Table 5.

Table 5: Unallowable Expenses

Description	NSF Award No.	Fiscal Year	Questioned Costs			
			Direct	Indirect	Total	Clemson Agreed to Reimburse
December 2017 Registration Fee	██████	2018	\$1,500	\$167	\$1,667	\$0
March 2018 Airfare	██████	2018	1,806	903	2,709	2,709
March 2018 Graduate Student Travel	██████	2018	209	105	314	314
September 2018 Lodging	██████	2019	1,215	0	1,215	1,215
October 2018 Airfare	██████	2019	1,052	526	1,578	1,578
April 2019 Airfare	██████	2019	3,868	1,934	5,802	5,802
September 2019 Lodging	██████	2020	1,668	185	1,853	1,853
October 2019 Travel to ██████ ██████	██████	2020	3,552	1,865	5,417	5,417

⁴⁶ We calculated the questioned costs as follows: \$8,550 - \$8,432 = \$118 unallowable salary + \$39 associated fringe benefits = \$157. \$157 * 1.525 (indirect cost application) = \$239. We therefore calculated the MTDCs as \$239.

Description	NSF Award No.	Fiscal Year	Questioned Costs			
			Direct	Indirect	Total	Clemson Agreed to Reimburse
October 2019 Travel-Related Purchases	██████	2020	672	75	747	502
February 2017 Participant Hotel Stays	██████	2017	383	0	383	383
April 2018 Participant Support Costs	██████	2018	1,765	0	1,765	1,765
July 2018 – June 2019 Salary	██████	2019	<u>157</u>	<u>82</u>	<u>239</u>	<u>0</u>
Total			<u>\$17,847</u>	<u>\$5,842</u>	<u>\$23,689</u>	<u>\$21,538</u>

Source: Auditor summary of identified exceptions.

Recommendations

We recommend that NSF's Director of the Division of Institution and Award Support:

1. Resolve the \$2,151 in questioned travel and salary costs for which Clemson has not agreed to reimburse NSF and direct Clemson to repay or otherwise remove the sustained questioned costs from its NSF awards.
2. Direct Clemson to provide documentation supporting that it has repaid or otherwise credited the \$21,538 of questioned travel and participant support costs for which it has agreed to reimburse NSF.
3. Direct Clemson to strengthen its policies and procedures related to creating and retaining documentation, including introducing additional controls to help ensure that it appropriately creates and maintains all documentation necessary to support the allowability of expenses charged to sponsored programs.
4. Direct Clemson to strengthen its administrative and management processes and procedures surrounding the approval of travel expense reports. Updated procedures could include:
 - a. Establishing clear guidance regarding the allowability of registration fees when individuals are no longer able to attend the event.
 - b. Developing a procedure to evaluate travel that occurs near the end of an award and remove any travel costs associated with trips that occur after the award expires.

- c. Conducting annual training for individuals responsible for reviewing and approving expense reports within each department, to define what expenses are allowable on a sponsored program.
 - d. Establishing clear guidance regarding the booking of lodging and what constitutes moderately priced accommodations.
 - e. Reviewing all foreign airfare purchases before charging them to sponsored programs to verify that the airfare complies with the Fly America Act.
5. Direct Clemson to establish clear guidance regarding the allowability of participant support funding for employee travel.
 6. Direct Clemson to establish procedures to ensure that its salary payments do not exceed the employee's Institutional Base Salary.

Clemson University Response: Clemson disagreed with our conclusions regarding the allowability of \$2,151 in costs questioned on three NSF awards. Specifically:

- With regard to the \$1,667 in questioned registration fees charged to NSF Award No. [REDACTED] Clemson disagreed with the finding, stating that the PI requested a refund from the organizers of the NSF-sponsored conference but did not receive one. Clemson further noted that, because the participants were unable to meet the terms of this award due to illness on the part of one of the participants, Clemson returned the award to NSF, and NSF closed the award knowing that the Clemson personnel were unable to attend the required conference.
- With regard to the \$747 in questioned travel-related purchases charged to NSF Award No. [REDACTED] Clemson partially agreed with the finding, stating that it has removed the \$502 associated with upgraded airfare and travel insurance but believes the remaining \$245 in costs associated with Wi-Fi expenses are allowable. Specifically, Clemson believes the expenses it incurred to purchase a Wi-Fi hotspot and connection plan are allowable because they enabled the PI to participate in NSF Cohort calls while performing fieldwork in rural [REDACTED].
- With regard to the \$239 in questioned salary expenses charged to NSF Award No. [REDACTED] Clemson stated that the amount charged to NSF awards did not exceed the individual's Institutional Base Salary. Clemson noted that it did exceed the individual's Institutional Base Salary in fiscal year 2019 by \$157 in direct costs; however, Clemson stated that it included this amount in the \$858 in incidental pay it charged to institutional/non-sponsored sources.

Auditors' Additional Comments: Our position regarding this finding has not changed. Specifically:

- With regard to the \$1,667 in questioned registration fees charged to NSF Award No. [REDACTED] although Clemson noted that it returned the award to NSF, because Clemson paid the registration fees for personnel that did not ultimately attend the conference, these costs are not allowable. As such, our position regarding this finding has not changed.
- With regard to the \$245 in questioned travel-related purchases charged to NSF Award No. [REDACTED] that Clemson did not agree to reimburse, these expenses related to the purchase of a hotspot cellular phone plan, prepaid cellular phones, and cellular phone headsets and headphones. Because Clemson did not support that the expenses were reasonable or necessary to achieve the award objectives, did not include funds for general-purpose supplies in the budget, and only budgeted funding for travel to meetings and to meet potential customers and partners, our position regarding this finding has not changed.
- With regard to the \$239 in questioned salary expenses charged to NSF Award No. [REDACTED] Clemson was unable to provide documentation to support that it did not charge this NSF award for the \$157 in salary expenses that exceeded the individual's Institutional Base Salary. As the amount that Clemson charged NSF Award No. [REDACTED] for the pay period from January 1 to January 15, 2019, exceeded the applicable Institutional Base Salary pay rate, our position regarding this finding has not changed.

Finding 6: Incorrect Indirect Cost Rate Applied to Supplemental Funding

Between August 2018 and January 2020, Clemson applied an incorrect indirect cost rate to supplemental funding awarded under NSF Award Nos. [REDACTED] (Amendment [REDACTED] [REDACTED]) (Amendments [REDACTED] and [REDACTED] and [REDACTED] (Amendment [REDACTED] [REDACTED]). Specifically, Clemson established accounts to apply the indirect cost rate that was effective when it received the supplemental funding, consistent with its standard practice and Federal criteria,⁴⁷ rather than the indirect cost rate that was effective when the original grant was awarded, as required by the NSF funding supplements.⁴⁸ Because Clemson did not separately track the funding it received from these funding supplements, it was unable to support that it had not over-applied indirect costs to funding awarded through these supplements, as outlined in Table 6.a. below.

⁴⁷ According to 2 CFR 200, Appendix III - *Indirect (F&A) Costs Identification and Assignment, and Rate Determination for Institutions of Higher Education (IHEs)*, "In accordance with 2 CFR 200, Appendix III, C.7, the grantee must use the negotiated rates for indirect costs (F&A) in effect at the time of the initial award throughout the life of the sponsored agreement. Award levels for sponsored agreements may not be adjusted in future years as a result of changes in negotiated rates."

⁴⁸ According to the referenced amendments for NSF Award Nos. [REDACTED] [REDACTED] and [REDACTED] Clemson must use the initial indirect cost rate for any continuing grant increments and any supplemental funding awarded under the agreement.

Table 6.a. Over Applied Indirect Cost Rate Application to Supplements

NSF Award No.	Award Period	Modified Total Direct Cost	Indirect Costs Applied	Applied Rate	Allowable Rate	Questioned Costs
██████	August 2018 – September 2018	\$40,111	\$20,858	52%	50%	\$802
██████	October 2018 – September 2019	304,140	159,674	52.50%	50%	7,603
██████	August 2019 – January 2020	31,918	16,757	52.50%	52%	<u>160</u>
Total						<u>\$8,565</u>

Source: Auditor summary of identified exceptions related to over-applied indirect cost rates on funding supplements.

Clemson applied the indirect cost rate that was effective when it received the funding supplements, in accordance with its standard procedures and the award budget, rather than applying the indirect cost rate specified in the supplemental funding letters. As a result, Clemson over-applied indirect costs to NSF funding supplements. We are therefore questioning \$8,565 in over-applied indirect costs charged to three NSF awards. Clemson concurred with the full \$8,565 in questioned costs, as illustrated in Table 6.b.

Table 6.b. Incorrect Indirect Cost Rate Applied to Supplemental Funding

Description	NSF Award No.	Fiscal Year	Questioned Costs			
			Direct	Indirect	Total	Clemson Agreed to Reimburse
August – September 2018 Supplemental Indirect Costs	██████	2019	\$0	\$802	\$802	\$802
October 2018 – September 2019 Supplemental Indirect Costs	██████	2019 - 2020	0	7,603	7,603	7,603
August 2019 – January 2020 Supplemental Indirect Costs	██████	2020	<u>0</u>	<u>160</u>	<u>160</u>	<u>160</u>
Total			<u>\$0</u>	<u>\$8,565</u>	<u>\$8,565</u>	<u>\$8,565</u>

Source: Auditor summary of identified exceptions.

Recommendations

We recommend that NSF's Director of the Division of Institution and Award Support:

1. Direct Clemson to provide documentation supporting that it has repaid or otherwise credited the \$8,565 of questioned indirect costs for which it has agreed to reimburse NSF.
2. Direct Clemson to update its current proposal submission and award set-up practices to require that, when setting up accounts established for supplemental funding for NSF

awards, personnel ensure that the accounts apply indirect costs as directed by the supplemental funding letter.

Clemson University Response: Clemson agreed with this finding and the associated questioned costs.

Auditors' Additional Comments: Our position regarding this finding has not changed.

Finding 7: Non-Compliance with Federal Requirements for Pass-Through Entities

Clemson did not comply with all Federal requirements for pass-through entities⁴⁹ for subawards issued under nine NSF awards. Specifically, we identified 13 instances in which Clemson did not, or could not, support that it:

- Evaluated the subrecipient's risk of noncompliance with Federal statutes and regulations, as well as the terms and conditions of the subaward, for purposes of determining the appropriate subrecipient monitoring required for each contract.
- Considered imposing specific subaward conditions based on the results of the risk evaluation.
- Verified that every subrecipient underwent audits.
- Considered whether the results of the subrecipient's audits (or other reviews) would require adjustments to Clemson's records.
- Considered whether it needed to take any enforcement action against the subrecipient to ensure the subrecipient complied with Federal statutes.

Although Clemson's Office of Grants and Contracts Administration now ensures it appropriately documents compliance with Federal requirements for pass-through entities, Clemson used the Office of Sponsored Programs to prepare and issue subawards until July 2017. At such time, the responsibility transitioned to the Office of Grants and Contracts Administration, and Clemson updated the policies and procedures in June 2018. Although the Office of Sponsored Programs had policies and procedures in place to ensure compliance with Federal requirements, it did not

⁴⁹ According to 2 CFR §200.331, *Requirements for pass-through entities*, "All pass-through entities must: ... (b) Evaluate each subrecipient's risk of noncompliance with Federal statutes, regulations, and the terms and conditions of the subaward for purposes of determining the appropriate subrecipient... (c) Consider imposing specific subaward conditions upon a subrecipient if appropriate as described in §200.207 *Specific conditions*. (d) Monitor the activities of the subrecipient as necessary to ensure that the subaward is used for authorized purposes, in compliance with Federal statutes, regulations, and the terms and conditions of the subaward; and that subaward performance goals are achieved. (e) Depending upon the pass-through entity's assessment of risk posed by the subrecipient (as described in paragraph (b) of this section), the following monitoring tools may be useful for the pass-through entity to ensure proper accountability and compliance with program requirements and achievement of performance goals: (1) Providing subrecipients with training and technical assistance on program-related matters; and (2) Performing on-site reviews of the subrecipient's program operations; (3) Arranging for agreed-upon-procedures engagements as described in §200.425 *Audit services*. (f) Verify that every subrecipient is audited as required by Subpart F— Audit Requirements of this part when it is expected that the subrecipient's Federal awards expended during the respective fiscal year equaled or exceeded the threshold set forth in §200.501 *Audit requirements*. (g) Consider whether the results of the subrecipient's audits, on-site reviews, or other monitoring indicate conditions that necessitate adjustments to the pass-through entity's own records. (h) Consider taking enforcement action against noncompliant subrecipients as described in §200.338 *Remedies for noncompliance of this part and in program regulations*."

maintain documentation to support that it had executed these procedures. As a result, we were unable to verify that Clemson had effectively evaluated and monitored 13 subawards issued across 9 NSF awards, as illustrated in Table 7.

Table 7. Non-Compliance with Federal Requirements for Pass-Through Entities

NSF Award No.	Subaward Effective Date	Subawardee
	August 2017	President and Fellows of [REDACTED]
	September 2016	University of [REDACTED]
	August 2015	University of [REDACTED]
	February 2018	[REDACTED] District of [REDACTED] County
	February 2015	University of [REDACTED]
	February 2015	University of [REDACTED]
	March 2015	Board of Regents of The University of [REDACTED]
	May 2016	[REDACTED] Technical College
	April 2016	[REDACTED] Community College
	July 2015	University of [REDACTED]
	September 2016	[REDACTED] Institute
	March 2016	[REDACTED] University
	February 2017	[REDACTED] University

Source: Auditor summary of identified instances of non-compliance.

Recommendation

We recommend that NSF's Director of the Division of Institution and Award Support:

1. Direct Clemson to ensure that it has performed risk evaluations for all subawards issued prior to June 2018 and that these risk evaluations remain active, to validate the agreements in accordance with Federal regulations.

Clemson University Response: Clemson partially agreed with this finding, stating that because it had updated its subaward processing and subrecipient monitoring processes in July 2018 to comply with the Uniform Guidance, it was appropriately monitoring the University of [REDACTED], [REDACTED] Technical College, [REDACTED] Community College, University of [REDACTED], and [REDACTED] Institute subawards at the time it incurred the sampled subaward expenses.

Auditors' Additional Comments: Our position regarding this finding has not changed. Although Clemson noted that it has performed risk evaluations for some of the identified subawardees since July 2018, because Clemson executed each of the subawards identified in Table 7 prior to July 2018, it did not appropriately consider each subrecipient's risk of noncompliance with Federal statutes and regulations, as well as the terms and conditions of the subaward, for purposes of determining the appropriate subrecipient monitoring procedures at the time of subcontract award. As such, our position regarding this finding has not changed.

Finding 8: Non-Compliance with NSF Terms and Conditions

Clemson charged two NSF awards for costs that did not comply with NSF's terms and conditions. Because these instances of non-compliance did not directly result in Clemson charging unallowable costs to NSF awards, we are not questioning any costs for these exceptions. Specifically:

- In August 2017, Clemson used \$6,875 in participant support cost funding awarded under NSF Award No. [REDACTED] to reserve a venue for a workshop. Although Clemson proposed and spent these costs in accordance with the NSF-approved budget, budgeting costs to rent a venue as participant support costs does not comply with the NSF Terms and conditions.⁵⁰
 - *Clemson agreed with this exception.*
- Clemson did not ensure the PI of NSF Award No. [REDACTED] submitted the final report for this award within 120 days of the grant end date, as required by the NSF terms and conditions.⁵¹ Specifically, Clemson indicated that it had not submitted a final report for this award because the PI had transferred to another university; however, the report was due before the PI transferred.
 - *Clemson agreed with this exception.*

Clemson does not have adequate grant oversight procedures in place to ensure that it consistently budgets NSF awards in accordance with NSF's terms and conditions. Further, Clemson does not have sufficient policies or procedures in place to ensure that personnel submit final project reports to NSF in accordance with the NSF terms and conditions. As a result, we identified two instances in which Clemson did not comply with NSF's terms and conditions, as illustrated in Table 8.

⁵⁰ According to the NSF Research Terms & Conditions, Agency Specific Requirements, Article 13.a., participant support costs are direct costs for items such as stipends or subsistence allowances, travel allowances, and registration fees paid to or on behalf of participants (but not employees) in connection with NSF-sponsored conferences. Further, NSF's May/June 2017 Proposal & Award Policy Newsletter states that grantees should not use the participant support cost line in the NSF budget for costs such as room rental fees for an NSF-sponsored conference.

⁵¹ According to the NSF Research Terms & Conditions, Agency Specific Requirements, Article 8.b.1., the final project report is considered due within the 120-day period following the grant end date. The report becomes overdue the day after the 120-day period ends.

Table 8. Non-Compliance with NSF Terms and Conditions

Description	NSF Award No.	Fiscal Year	Questioned Costs			Clemson Agreed to Reimburse
			Direct	Indirect	Total	
August 2017 Workshop Venue	██████	2018	\$0	\$0	\$0	\$0
November 2018 – September 2019 Final Report	██████	2019 - 2020	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total			<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>

Source: Auditor summary of identified instances of non-compliance.

Recommendations

We recommend that NSF’s Director of the Division of Institution and Award Support:

1. Direct Clemson to update its current pre-award procedures and internal controls for reviewing NSF proposal budgets to ensure that all costs included in the participant support cost budget comply with NSF terms and conditions.
2. Direct Clemson to update its current procedures and internal controls to ensure that Principal Investigators submit final reports to NSF in accordance with NSF’s terms and conditions. Updated procedures should require Clemson to verify the submission of the final report with both the Principal Investigators and NSF during project close-out or when the Principal Investigator is leaving Clemson.

Clemson University Response: Clemson agreed with this finding.

Auditors’ Additional Comments: Our position regarding this finding has not changed.

Finding 9: Non-Compliance with Clemson Policies

Clemson did not always comply with, or did not always document its compliance with, its internal policies and procedures for equipment, subaward, effort, documentation retention, travel, procurement, and indirect cost when incurring costs charged to NSF awards. Because these instances of non-compliance did not directly result in Clemson charging unallowable costs to NSF awards, we are not questioning any costs for these exceptions. Specifically:

Non-Compliance with Clemson Equipment Policies

We identified one instance in which Clemson did not comply with its internal policies and procedures for equipment, which require all equipment purchases with sponsored funds to be approved by the Office of Grants and Contracts Administration,⁵² as follows:

- As a result of purchasing equipment using a non-sponsored funding source before transferring the expense to the NSF award, Clemson charged NSF Award No. [REDACTED] for \$29,209 of equipment without obtaining the required prior approval.
 - *Clemson agreed with this exception.*

Non-Compliance with Clemson Subaward Policies

We identified one instance in which Clemson did not comply with its internal subaward policies, which require PIs to obtain a Subrecipient Commitment Form for non-budgeted subawardees,⁵³ as follows:

- Between February 2017 and December 2018, Clemson charged NSF Award No. [REDACTED] for \$30,207 in costs related to a non-budgeted subaward agreement with the University of [REDACTED] for which Clemson did not provide a completed Subrecipient Commitment Form.
 - *Clemson agreed with this exception.*

Non-Compliance with Clemson Effort Policy

We identified one instance in which Clemson did not comply with its internal policy for effort-reporting, which requires that personnel certify their effort within 30 days,⁵⁴ as outlined in Table 9.a. below.

⁵² According to Clemson Sponsor Approvals, Clemson policy defines equipment as any item of non-expendable property having a useful life of more than one year and an acquisition cost of more than \$5,000 per unit. The Office of Grants and Contracts Administration must approve all equipment purchases that use sponsored program funds.

⁵³ According to Clemson's Subaward Guide, when a PI is seeking to add a non-budgeted sub-awardee to an existing award, the PI must obtain a completed Subrecipient Commitment Form from the subawardee's pre-award office.

⁵⁴ According to Clemson's Sponsored Compensation Verification System Procedures, reports are due 30 days from the date they become available. If any report is not checked/verified within the system and approved by the due date, the system administrator and/or the Vice President of Research will send a notification to the PI.

Table 9.a. Non-Compliance with Clemson Effort Policy

NSF Award No.	Effort Reporting Period	Effort Reporting Due Date	Effort Reporting Certification Date
	05/16/2017 – 08/15/2017	10/12/2017	06/08/2020

Source: Auditor summary of identified instance of non-compliance with Clemson’s internal effort-reporting policy.

- *Clemson agreed with this exception.*

Non-Compliance with Clemson Document Retention Policies

We identified one instance in which Clemson did not comply with its internal policies for document retention, which require it retain procurement documents for seven years,⁵⁵ as follows:

- Clemson did not retain a copy of the packaging slip it received to support when it received \$2,687 in polymers it charged to NSF Award No. [REDACTED]
 - *Clemson agreed with this exception.*

Non-Compliance with Clemson Travel Policies

We identified two instances in which Clemson did not comply with its internal travel policies which require that foreign travel be pre-approved,⁵⁶ as follows:

- In December 2018, Clemson charged NSF Award No. [REDACTED] for \$9,797 in travel costs for the PI to travel to [REDACTED] [REDACTED] and [REDACTED]. Although the PI completed the Request for Approval for Foreign Travel form, the Office of Grants and Contracts Administration did not approve the form.
 - *Clemson agreed with this exception.*
- In July 2019, Clemson charged NSF Award No. [REDACTED] for \$6,997 in commercial airfare costs to enable the PI to present research at a conference in [REDACTED]. Although the Office of Grants and Contracts Administration approved the Request for Approval for Foreign Travel form, the approver did not sign the form until after the PI incurred the expenses.
 - *Clemson agreed with this exception.*

⁵⁵ According to Clemson’s Procurement Policies and Procedures for Record Retention, pursuant to University Records Management Document Retention requirements, Clemson must maintain procurement records for 7 years.

⁵⁶ According to Sponsored Approvals for Foreign Travel, when a sponsored project requires travel to a foreign country, the traveler must obtain advance approval.

Non-Compliance with Clemson Procurement Policies

We identified three instances in which Clemson did not comply with its internal procurement policies, as follows:

- In March 2018, Clemson charged NSF Award No. [REDACTED] for \$10,000 in consulting costs that the consultant invoiced before Clemson completed the purchase requisition.⁵⁷
 - *Clemson agreed with this exception.*
- In December 2018, Clemson charged NSF Award No. [REDACTED] for \$13,680 in consultant fees related to evaluation work. Although Clemson was able to provide a vendor invoice to support the amount charged, it did not provide documentation to support that it had competitively bid the services, or documentation to support that the rates included in the invoice matched the agreed-upon service rates.⁵⁸
 - *Clemson agreed with this exception.*
- In February 2019, Clemson charged NSF Award No. [REDACTED] for \$9,000 in consultant fees for computer calculations and R-matrix expertise. Although Clemson was able to provide a vendor invoice to support the amount charged, it did not provide a service agreement, consulting contract, documentation to support that it had competitively bid the services, or documentation to support that the rates included in the invoice matched the agreed-upon service rates.
 - *Clemson agreed with this exception.*

Non-Compliance with Clemson Budgeting Policy

We identified two instances in which Clemson did not fully recover indirect costs in accordance with its budgeting policy,⁵⁹ as follows:

- Clemson under-applied indirect costs to NSF Award No. [REDACTED] during fiscal years 2018 and 2019 because it tracked budgeted undergraduate salaries using an account code titled “Classified Sal Supp-IBS Exclude,” which did not apply indirect costs.

⁵⁷ According to the Clemson procurement policy titled *No PO, No Pay*, the university procurement policy for purchase orders mandates that “[t]he procurement of all goods and services must be based on a purchase order issued to the supplier through our eProcurement system prior to the delivery of the goods or the commencement of the service.” However, the invoice for the consulting services was dated February 2018, before the requisition issue date of March 13, 2018, and the purchase order date of March 21, 2018.

⁵⁸ According to the Clemson policy titled Consulting Services, “a contract with a consultant should contain a clear deliverable (i.e. what is the consultant going to provide Clemson in exchange for the money we will pay them).”

⁵⁹ According to the Clemson policy titled Developing the Budget, indirect costs are to be fully incurred for common objectives of the university and must be accounted for on all sponsored program proposals. Full recovery is expected on all grants up to the level allowed by the sponsor’s written policy. In addition, no voluntary reductions of indirect costs will be allowed without approval of the Vice President for Research.

- *Clemson agreed with this exception.*
- Clemson under-applied indirect costs to NSF Award No. [REDACTED] because it excluded \$14,053 of the first \$25,000 invoiced under a subaward between Clemson and [REDACTED] University from its MTDC.
- *Clemson agreed with this exception.*

Clemson did not have adequate procedures in place to ensure that it consistently complied with, and documented its compliance with, its internal policies and procedures for equipment, subaward, effort, document retention, travel, procurement, and budgeting. As a result, we identified 11 instances in which Clemson did not comply with its internal policies when charging costs to NSF awards, as illustrated in Table 9.b.

Table 9.b. Non-Compliance with Clemson Policies

NSF Award No.	Compliance Exception Identified
[REDACTED]	Non-Compliance with Clemson Equipment Approval Policies
[REDACTED]	Non-Compliance with Clemson Subaward Policies
[REDACTED]	Non-Compliance with Clemson Effort Policies
[REDACTED]	Non-Compliance with Clemson Documentation Retention Policies
[REDACTED]	Non-Compliance with Clemson Travel Policies
[REDACTED]	Non-Compliance with Clemson Travel Policies
[REDACTED]	Non-Compliance with Clemson Procurement Policies
[REDACTED]	Non-Compliance with Clemson Procurement Policies
[REDACTED]	Non-Compliance with Clemson Procurement Policies
[REDACTED]	Non-Compliance with Clemson Indirect Cost Application Policy
[REDACTED]	Non-Compliance with Clemson Indirect Cost Application Policy

Source: Auditor summary of identified instances of non-compliance.

Recommendations

We recommend that NSF's Director of the Division of Institution and Award Support:

1. Direct Clemson to strengthen its administrative and management procedures for equipment expenditures to ensure that the Office of Grants and Contracts Administration approves all equipment purchased with non-sponsored funds and subsequently transferred to sponsored funds.
2. Direct Clemson to strengthen its administrative and management procedures to confirm it has completed the subrecipient documentation package before approving non-budgeted subawards.
3. Direct Clemson to strengthen its administrative and management procedures and internal controls related to the effort certification process. Updated procedures could include

requiring Office of Grants and Contracts Administration personnel to follow up with any personnel that do not certify their effort reports within 30 days.

4. Direct Clemson to strengthen its administrative and management processes surrounding document retention for purchases on sponsored awards.
5. Direct Clemson to strengthen its directives, procedures, and internal controls for obtaining approval for foreign travel before the trip occurs.
6. Direct Clemson to strengthen its directives, procedures, and internal controls for procuring contract services on sponsored projects. Updated processes could include the following:
 - a. Conducting annual training for those individuals who procure contract services, including Principal Investigators. The training should include topics such as the process for obtaining approvals for contractors on sponsored programs, the documentation needed before work begins, and the purchase order process required before issuing payment.
 - b. Requiring individuals who initiate contract services to complete the applicable information in the appropriate procurement forms, as required by Clemson policy for contracted service agreements on sponsored projects.
7. Direct Clemson to strengthen its procedures and internal controls for reviewing account codes that are required to incur indirect costs. Updated procedures could include an annual indirect cost reconciliation.

Clemson University Response: Clemson agreed with this finding.

Auditors' Additional Comments: Our position regarding this finding has not changed.

Finding 10: Incorrect Application of Proposed Indirect Cost Rates

Clemson applied, and allowed its subawardees to apply, incorrect indirect cost rates to direct expenses accumulated on 25 NSF awards. For each of these awards, Clemson, or the subawardee, applied the NICRA rate that was in effect at the time it submitted the award proposal, rather than the rates included in the NICRA that was in effect as of the date of award, as required by Federal⁶⁰ and NSF guidance.⁶¹

Clemson stated that it allowed PIs and subawardees to apply the indirect cost rates included in

⁶⁰ According to 2 CFR 220, Appendix A, Section G.7.a. and 2 CFR 200, Appendix III, Section C.7, Federal agencies must use the negotiated rates for F&A costs in effect at the time of the initial award throughout the life of the sponsored agreement.

⁶¹ NSF also requires Institutions of Higher Education to use the negotiated indirect cost rate in effect as of the date of the award throughout the life of the award. See NSF PAPPGs 11-1, 15-1, 16-1, 17-1, 18-1, and 19-1, Part I, Chapter II, Section C.2.g.(viii).

their NSF-approved proposals because it did not want to “punish” PIs and subawardees by increasing the indirect cost rate applied to their awards and subawards because the NICRA rates increased between the proposal submission date and the grant award date. As a result, Clemson and its subawardees applied inappropriate indirect cost rates to direct expenses accumulated on 25 NSF awards, as illustrated in Tables 10.a and 10.b.

Table 10.a. Clemson’s Incorrect Application of Proposed Indirect Cost Rates

NSF Award No.	Award Date	Rate Applied	Appropriate Rate
	8/27/2012	0.00%	50.00%
	5/14/2013	48.50%	50.00%
	10/14/2014	44.00%	50.00%
	8/17/2015	50.00%	52.00%
	12/29/2015	50.00%	52.00%
	2/18/2016	50.00%	52.50%
	3/1/2016	50.00%	52.00%
	3/8/2016	50.00%	52.00%
	5/4/2016	50.00%	52.50%
	7/6/2016	50.00%	52.00%
	8/19/2016	52.00%	52.50%
	8/20/2016	50.00%	52.00%
	9/9/2016	50.00%	52.00%
	12/2/2016	43.00%	52.00%
	1/25/2017	52.00%	52.50%
	2/7/2017	52.00%	52.50%
	6/23/2017	52.00%	52.50%
	8/1/2017	52.00%	52.50%
	8/9/2017	52.00%	52.50%
	8/14/2017	52.00%	52.50%
	1/16/2018	46.00%	52.50%
	7/6/2018	0.00%	52.50%
	5/13/2019	10.00%	11.11%

Source: Auditor summary of identified instances of non-compliance.

Table 10.b. Clemson Subawardees’ Incorrect Application of Proposed Indirect Cost Rates

NSF Award No.	Subawardee	Subawardee Rate Applied	Appropriate Rate
	University of [REDACTED]	47.00%	48.50%
	University of [REDACTED]	57.00%	58.00%
	University of [REDACTED]	50.50%	53.00%

Source: Auditor summary of identified instances of non-compliance.

Recommendations

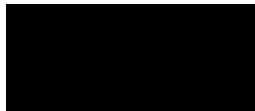
We recommend that NSF’s Director of the Division of Institution and Award Support:

1. Direct Clemson to update its current award set-up practices to require that, when setting up accounts established for NSF awards, personnel ensure that the accounts apply indirect costs using the rates that were established in the Negotiated Indirect Cost Rate Agreement in effect as of the date of the NSF grant award (except in instances where the award letter or supplement letter specifies otherwise), rather than using the rates included within the original grant proposal.
2. Direct Clemson to require its subawardees to apply indirect costs using the rates that were established in the Negotiated Indirect Cost Rate Agreement in effect as of the date the subaward was granted, rather than using the rates included within the subaward budget and proposal.

Clemson University Response: Clemson agreed with this finding.

Auditors' Additional Comments: Our position regarding this finding has not changed.

COTTON & COMPANY LLP



Megan Mesko, CPA, CFE
Partner
April 29, 2021

APPENDIX A: SCHEDULE OF QUESTIONED COSTS BY FINDING

NATIONAL SCIENCE FOUNDATION
ORDER # 140D0420F0172
PERFORMANCE AUDIT OF COSTS CLAIMED ON NSF AWARDS
CLEMSON UNIVERSITY

SCHEDULE OF QUESTIONED COSTS BY FINDING

Finding	Description	Questioned Costs		Total
		<i>Unsupported</i>	<i>Unallowable</i>	
1	Inappropriately Applied Indirect Costs	\$0	\$83,248	\$83,248
2	Inappropriately Allocated Expenses	0	57,318	57,318
3	Unreasonable and Unallocable Computer Cluster Node Access Expenses	0	58,000	58,000
4	Inadequately Supported Expenses	0	45,620	45,620
5	Unallowable Expenses	0	23,689	23,689
6	Incorrect Indirect Cost Rate Applied to Supplemental Funding	0	8,565	8,565
7	Non-Compliance with Federal Requirements for Pass-Through Entities	0	0	0
8	Non-Compliance with NSF Terms and Conditions	0	0	0
9	Non-Compliance with Clemson Policies	0	0	0
10	Incorrect Application of Proposed Indirect Cost Rates	0	0	0
Total		<u>\$0</u>	<u>\$276,440</u>	<u>\$276,440</u>

APPENDIX B: CLEMSON UNIVERSITY RESPONSE



March 26, 2021

Cotton & Company, LLC
Attn: Megan Mesko, CPA, CFE - Partner
635 Slaters Lane, 4th Floor
Alexandria, VA 22314

Subject: Clemson University Performance Audit of Incurred Costs for National Science Foundation ("NSF") Awards for the period March 1, 2017 ending February 29, 2020.

Dear Ms. Mesko,

Clemson University appreciates the opportunity to work with the National Science Foundation Office of Inspector General and Cotton & Company, LLC to examine its internal controls and research accounting practices. Clemson takes very seriously its obligation to administer NSF awards in compliance with all applicable regulations, laws, policies, and requirements. As such, Clemson welcomes the recommendations and opportunities to improve its research-related practices and is committed to continuing to enhance policies and procedures to strengthen internal control functions.

Attached is the report with Clemson's response to each finding. Please note within the responses, Clemson has provided the refund and method for those findings where we concur, however, Clemson does not concur with \$142,704.09 in questioned costs.

We appreciate the consideration offered Clemson throughout the audit process, and we thank your team for their professionalism and skill.

Best Regards,



Rick Petillo
Chief Financial Officer

Attachment: Appendix 1

Finance and Operations

Clemson University
G06 Sikes Hall
Box 345302
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29634-5302

P 864-656-2421
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Finding 1: Inappropriately Applied Indirect Costs

Clemson charged five NSF awards a total of \$83,248 in indirect costs it inappropriately applied to capital expenses, subawards, and participant support costs that it should not have accounted for as Modified Total Direct Costs (MTDCs) per Federal regulations, NSF Proposal and Award Policies and Procedures Guides (PAPPGs), or Clemson's Negotiated Indirect Cost Rate Agreements (NICRAs).

University Response: The University concurs, in general, with this finding, except for the specific finding(s) referenced, as listed below:

- 1A.1. **Auditor Finding:** Between March 2017 and November 2018, Clemson charged NSF Award No. [REDACTED] for \$49,814 in indirect costs assessed on \$99,628 in capital expenditures incurred when building an addition to its Ecological Center in South Carolina. Clemson stated the building was not required to be capitalized, as it did not meet the State of South Carolina's and Clemson University's \$100,000 capitalization threshold. Although NSF approved Clemson's budget for the project, which did not account for the building as a capital asset, Clemson incurred the direct costs as part of building a capital asset as defined by the Uniform Guidance, and it therefore should not have applied indirect costs to these expenses.
- 1A.2. **University Response:** Clemson does not concur with this finding. As stated in footnote 7, the expenses related to the porch addition to the Ecological Center totaled \$87,818. The auditor identified expenses of \$11,810 was for expenses towards other activities that were unrelated to the porch's addition. The University followed State and University policy in application of a \$100,000 threshold in its determination to not capitalize the \$87,818 costs of the porch. Since the costs did not meet or exceed the threshold, and the proposed activity was submitted and awarded with the application of F&A, the university views that it appropriately charged indirect costs and did not capitalize the asset.

Finding 2: Inappropriately Allocated Expenses

Clemson did not always allocate expenses to NSF awards based on the relative benefits the awards received, as required by Federal regulations and NSF PAPPGs. As a result, Clemson inappropriately allocated a total of \$62,721 in expenses to ten NSF awards.

University Response: The University concurs, in general, with this finding, except for the specific finding(s) referenced, as listed below:

- 2A.1. **Auditor Finding:** In January 2018, Clemson charged NSF Award No. [REDACTED] for \$8,031 in costs incurred to purchase a multi-spectral imaging camera. Although Clemson noted that the previous cameras were not performing adequately and the new camera allowed for additional flights and tree examination, Clemson did not receive the camera until February 13, 2018, nearly two weeks after the award's expiration date of January 1, 2018. Because the camera was not available to conduct research during the award's POP, the cost of this camera should not have been charged to this award.
- 2A.2. **University Response:** Clemson does not concur with this finding. 100% of the equipment purchase was allocable to the award. Based on this award being a one-year RAPID award, the principal investigator of the project justified the camera that was originally to be used for the project was not performing as anticipated. The image results were not readable, and all areas were re-imaged by the new camera. This camera provided the superior performance and spectral resolution needed in order to view the images and complete the project. The purchase of this camera, though late in the project, was purchased specifically for this award, and it enabled the team to perform 14 additional flights. Each flight produced 200-400 images at 5000 x 3000 pixel resolution. The images collected allowed for the examination of individual live, dying, and dead

trees, which enabled the team to complete the project and finalize the report. As noted in the final report to NSF: "In February of 2018, just as the project was officially concluding, a large area of forest stress and early mortality was discovered in the southern half of the area of salt inundation. So a new area of roughly 152 ha was surveyed for the first time in late February-early March with UAV photography (pg 2, 6,&7)". The purchase of the new camera permitted the UAV photography necessary for the completion of the project and facilitated the submission of the report on 07/3/2018.

- 2B.1. Auditor Finding:** In December 2018, Clemson charged NSF Award No. [REDACTED] for \$9,797 in travel costs for the PI to travel to [REDACTED] and [REDACTED]. Although the PI incurred the airfare costs to present research papers in each location, the presentation in [REDACTED] was the only one in which the PI presented a paper that acknowledged this NSF award. As the PI presented a different paper that acknowledged a separate NSF award in [REDACTED] and [REDACTED] and lacked airline documentation to support the cost for each leg of the trip, it does not appear to have been reasonable for Clemson to allocate the \$6,192 in travel costs associated with the [REDACTED] and [REDACTED] trips to this award. Clemson agreed to reimburse NSF for \$5,454 of expenses related to the travel days and airfare, for the [REDACTED] and [REDACTED] portion of the trip.
- 2B.2. University Response:** Clemson partially concurs with this finding. The \$5,454 in charges have been removed from the NSF project, via journals [REDACTED] for \$3,635.99 in direct cost charges and [REDACTED] for \$1,818.00 in associated F&A. However, as noted in footnote 13, the auditors disagree with Clemson's methodology. In support of Clemson's flight mileage assigned, it was only the related legs of the trip that could be allocated. Therefore, it included the mileage for [REDACTED] to [REDACTED], [REDACTED] to [REDACTED] and [REDACTED] to [REDACTED], since there was not a leg for the return [REDACTED] (945 miles). The method of allocation was determined to be a fair representation of cost for the portion of the flight associated with the award.
- 2C.1. Auditor Finding:** In May 2019, Clemson charged NSF Award No. [REDACTED] for \$7,505 in travel costs incurred to enable the PI to travel to [REDACTED] to collaborate with a research lab at the [REDACTED]. Although Clemson stated that the travel benefited the award, the budget did not include funding for a trip to [REDACTED] and the PI did not report any foreign travel or any collaborations with the [REDACTED] in the annual or final reports submitted to NSF. It therefore does not appear to have been reasonable for Clemson to allocate the cost of the travel to this award. In addition, of the total travel costs, we noted that the PI booked \$3,250 of airfare at a premium select fare, and Clemson did not maintain documentation to support the additional cost of the upgraded airfare. Clemson agreed to reimburse NSF for \$337 that Clemson claims to represent the premium portion of the airfare.
- 2C.2. University Response:** Clemson partially concurs with this finding. Documentation was provided to the auditors supporting the removal of the charge(s) on the NSF award. The cost associated with the premium flight service was self-identified by Clemson, an assessment was performed, and a reasonable amount of \$336.75, based on premium flight cost additions for the same trip if booked present day, and associated F&A was removed, via [REDACTED] and [REDACTED], from the award. Funds were returned via NSF ACM\$ on 11/24/2020. However, the University does not agree that the travel cost of trip was not allocable to the award. At the time of the proposal submission in early 2014, the PI had indicated that the collaboration with [REDACTED] was not envisioned. While foreign travel dollars were included in the original budget, the opportunity to collaborate came later in the project, which is why it was not specifically identified at that time. International collaboration/trips were included in the annual and final reports. Unfortunately, the exclusion of this specific travel in the final report was an oversight. The PI has attempted to amend and correct the report; however, the NSF help desk informed Clemson that the reports cannot be amended once approved.

- 2D.1. Auditor Finding:** Between August 2018 and January 2019, Clemson charged NSF Award Nos. [REDACTED] and [REDACTED] for \$15,043 in lodging costs for two graduate students, each of whom was sponsored by one of the awards. Although the lodging was shared equally between the two students, Clemson charged 60 percent of the lodging costs to NSF Award No. [REDACTED] and the remaining 40 percent to NSF Award No. [REDACTED]. As Clemson stated the rent should have been allocated equally between the two NSF awards, \$1,965 in lodging expenses were inappropriately charged to NSF Award No. [REDACTED]. Clemson agreed to reimburse NSF for these expenses.
- 2D.2. University Response:** Clemson partially concurs with the removal of \$1,309.96 in lodging expenses from NSF award [REDACTED] and has agreed to reallocate to NSF award [REDACTED] based on 50/50 split allocation. Documentation was provided to the auditors supporting the reallocation of the charge(s) on the NSF awards. This re-allocation was made via journal [REDACTED].
- 2E.1. Auditor Finding:** In March 2019, Clemson charged NSF Award No. [REDACTED] for \$18,360 in costs incurred for a maintenance contract with a POP from March 1, 2019, to February 28, 2022, which extends past the July 31, 2021 expiration date of the award. Although Clemson noted that it received 6 months of free maintenance on the equipment, which caused it to delay executing the maintenance agreement until later in the award period, Clemson should have returned the value of the free maintenance period to NSF as a benefit under the award, rather than charging NSF for services that the vendor will provide after the award period expires. Accordingly, the \$5,403 in service costs associated with maintenance the vendor will perform for 212 days after the award expires should not have been allocated to this award.
- 2E.2. University Response:** Clemson does not concur with this finding. While the Investigator charged the maintenance agreement to the award, it was expected that additional time would be needed to complete the project. A no cost extension was granted, and the project period end is 07/31/2022 negating any further issue of the maintenance contract extending past the award POP.
- 2F.1. Auditor Finding:** In August 2019, Clemson charged NSF Award No. [REDACTED] for \$4,950, or 100 percent of the costs it incurred to publish a research article that acknowledged three funding sources as having contributed to the research. While a portion of the publication costs do appear allocable to this NSF award, because Clemson did not provide a reasonable methodology for allocating this expense among the three sponsored resources, we are questioning all expenses associated with this publication. Clemson agreed to reimburse NSF for the \$248 that Clemson claims represents the portion allocable to the other contributing awards.
- 2F.2. University Response:** Clemson does not concur with this finding. The PI indicated that 100% of the research was performed at Clemson, and no more than 5% of the work activity related to this publication was performed at the other sites listed. Based on a proportional benefit allocation methodology, the University has transferred 5% (\$165 publication costs and \$82.50 in associated F&A by journals [REDACTED] and [REDACTED], respectively) in charges off the award. Documentation was provided to the auditors supporting the removal of the charge(s) on the NSF award.

Finding 3: Unreasonable and Unallocable Computer Cluster Expenses

Clemson charged six NSF awards a total of \$58,000 in direct costs for expedited and priority access to its Palmetto Computer Cluster Nodes. Clemson developed the Palmetto Computer Cluster infrastructure using both its own funding and funding from NSF Award Nos. [REDACTED] and [REDACTED]. Generally, the NSF awards were intended to contribute to the growth and development of Clemson's computational

infrastructure and allow for numerous NSF projects to benefit from these enhancements. Clemson also supported the infrastructure development project by contributing University funds, as well as fees that Clemson charged users for priority access to the cluster node. Although the computational infrastructure is free to use across the Clemson population, space on the cluster is limited. To guarantee access at a specific time, Clemson charges a fee based on the size of the computer node needed. PIs for six NSF awards paid a fee to obtain access to nodes. Although Clemson stated that the initial nodes had already been fully utilized and the fees enabled Clemson to purchase additional nodes that the six awards used, because NSF previously supported the development of the computer cluster infrastructure, and because the fee charged was not based on actual usage, or a schedule of rates designed to recover only the aggregate costs of the services, these access fees are unreasonable and unallowable. Further, because the fees grant users access to the node for up to 4 years, we determined that \$23,672 of the \$58,000 in questioned computer node access charges were not allocable to the awards charged because the costs related to access after the awards expired.

Clemson established a methodology to charge both sponsored and non-sponsored programs for access to the computer cluster infrastructure that did not comply with Federal regulation. Clemson's methodology resulted in an inappropriately designed fee for four years of access, 100 percent of which was allocated to the award, regardless of the benefit or time remaining on the award. Given that NSF previously contributed to the infrastructure development with the understanding that Clemson would use the infrastructure for NSF research projects and the full cost of the infrastructure access was never fully allocable to the six NSF awards, we are questioning \$58,000 of computer infrastructure access expenses charged to six NSF awards, as illustrated in Table 3.

University Response: Clemson does not concur with this finding. The six NSF awards listed in the table below represents the need for the purchase of node(s) in performing the research activities required of the grant. Further, the overall cost of the high-performance computing node to the University is approximately \$21,000, and the service level agreement (SLA) permits the user access for up to four years. The nodes for each project were purchased for the purpose of the NSF award. The four-year duration was the single option available for the purchase and was necessary for the benefit of the project and was absent any other benefit. The University feels the rate charged of \$7,500 was appropriate as the NSF award benefits 100% from the approximate 36% charge in the overall purchase price of the node. In review of the node charges provided below by the auditors, three of the identified projects incurred the allocated portion of cost, which seems reasonable if only considering time allocation as the only basis for allocation while the remaining three projects received 100% of the cost and benefit.

Finding 4: Inadequately Supported Expenses

Clemson did not provide adequate documentation to support the allocability, allowability, and reasonableness of \$45,620 in expenses charged to four NSF awards during the audit period, as required under Federal regulations and NSF PAPPs.

University Response: The University concurs, in general, with this finding, except for the specific finding(s) referenced, as listed below:

- 4A.1. **Auditor Finding:** In October 2017, Clemson charged NSF Award No. [REDACTED] for a \$2,627 payment it made to a student participant for 132 hours of work that were not supported by a timesheet or other form of tracking documentation. Although Clemson claimed that no timesheet was required as the payment related to a participant stipend, because this payment was not a set stipend, but rather based on an hourly rate, Clemson should have maintained documentation to support the 132 hours worked.
- 4A.2. **University Response:** Clemson does not concur with this finding. The expense was related to an REU award made explicitly for this student's involvement. The participant was paid a stipend

for participation, and the use of timesheets are not encouraged by the University for non-employee type activities. The Principal investigator only used an hourly calculation in determining the stipend amount as a method to ensure the payment made was, in some measure, appropriate for the time period and training activities performed by the student under this award. The REU student participated and was provided remuneration for the training received.

- 4B.1. **Auditor Finding:** In October 2017, Clemson charged NSF Award No. [REDACTED] for \$11,579 in costs incurred to obtain RNA sequencing services from an internal service center and outside vendor. Although the costs appear to have been allocable to the award and to have aligned with the award objectives, \$1,769 of the charged amount was not supported by the agreements provided.
- 4B.2. **University Response:** Clemson does not concur with this finding. Based on the documentation provided to the auditors, there were two services to be provided by the Genomics Institute, Library preparation and HiSeq Lanes at \$290 and \$3,100, respectively. Invoice submitted and charged to the NSF project identified \$250 was charged per library preparation. Due to changes in the Genomics institute, they could no longer perform the HiSeq lane work, and this portion of work had to be subcontracted. Support was provided of an SOW and quote from [REDACTED] for \$6,554, which was the amount charged. The only amounts remaining in question is the \$5,800 (\$290 x 20) identified in the original quote provided by the Genomics institute and the \$5,000 charged for HiSeq library preparations. The University's assessment is that the cost difference was in the favor of the government and should not result in a return of funds to the NSF.

Finding 5: Unallowable Expenses

Clemson charged 11 NSF awards a total of \$23,688 in expenses that were unallowable under Federal regulations and NSF PAPPGs

University Response: The University concurs, in general, with this finding, except for the specific finding(s) referenced, as listed below:

- 5A.1. **Auditor Finding:** In December 2017, Clemson charged NSF Award No. [REDACTED] for \$1,667 in conference registration fees. Although Clemson included the conference fees in its award budget, the Clemson personnel were unexpectedly unable to attend the conference. While Clemson noted that personnel attempted, but were unable, to obtain a refund, because the costs did not benefit the award, the conference registration fees are not allowable on this award.
- 5A.2. **University Response:** Clemson does not concur with this finding. The event was a required NSF sponsored conference. The award was returned to NSF since the terms could not be met due to illness on behalf of one of the participants. The PI requested a refund to the NSF organization, but no one would respond. The NSF officer was alerted of the expense and the lack of response in securing a refund. The NSF officer proceeded to close the award with this expense and associated F&A included.
- 5B.1. **Auditor Finding:** In October 2019, Clemson charged NSF Award No. [REDACTED] for \$18,459 in travel costs and other costs associated with the travel. Although the purpose of the trip appears to have benefited the award charged, Clemson charged the award for \$747 in unallowable travel costs including \$471 in unallowable upgraded airfare, \$245 in cellular phone purchases (including a hot spot cellular phone plan, prepaid cellular phones, landlines, and headphones), and \$31 in travel insurance. Clemson has agreed to reimburse NSF for \$502 of the expenses related to the upgraded airfare and the travel insurance.

- 5B.2. **University Response:** Clemson partially concurs with this finding. The University agrees with removing \$424 for upgraded airfare and \$28 in travel insurance, as well as \$50 in associated F&A, which has been performed via [REDACTED]. However, the University does not concur with auditor's decision that the \$220 for a wifi hotspot was unallowable. The University received the following justification in support of this charge: While traveling in rural [REDACTED] for the customer discovery and interviews, the research team needed to purchase a hot-spot wifi connection plan to enable them to call in/video in for the required weekly NSF Cohort update. Otherwise, the research team would not have had cell phone connection and wifi capability to video in for the sessions. The purchases allowed the team to communicate while involved in an important phase of the project. The University believes this justification supports the allowability and allocability of the charge.
- 5C.1. **Auditor Finding:** From July 1, 2018, to June 30, 2019, Clemson charged NSF Award No. [REDACTED] for \$8,550 in salary paid to an employee, which was greater than the \$8,431 they should have received based on their Institutional Base Salary. As the excess salary expenses were charged using a rate higher than the employee's Institutional Base salary, \$238 of salaries, fringe and indirect costs charged to this award are unallowable. Clemson agreed to reimburse NSF for these expenses.
- 5C.2. **University Response:** Clemson does not concur with this finding. The amount charged to NSF awards did not exceed the individuals Institutional Base Salary (IBS). In review of the \$156 in questioned salary and \$82 in associated F&A, the University did exceed IBS salary for this individual in fiscal year 2019 by \$156; however, \$858 was paid by institutional sources, and the \$156 pay in question was incidental pay charged as part of the \$858 to institutional/non-sponsored sources.

Finding 6: Incorrect Indirect Cost Rate Applied to Supplemental Funding

Between August 2018 and January 2020, Clemson applied an incorrect indirect cost rate to supplemental funding awarded under NSF Award Nos. [REDACTED] and [REDACTED].

University Response: The University concurs with this finding.

Finding 7: Non-Compliance with Federal Requirements for Pass-Through Entities

Clemson did not comply with all Federal requirements for pass-through entities for subawards issued under nine NSF awards. Specifically, we identified 13 instances in which Clemson did not, or could not, support that it:

- Evaluated the subrecipient's risk of noncompliance with Federal statutes, regulations, and the terms and conditions of the subaward for purposes of determining the appropriate subrecipient monitoring required for each contract;
- Considered imposing specific subaward conditions based on the results of the risk evaluation;
- Verified that every subrecipient was audited;
- Considered whether the results of the subrecipient's audits (or other reviews) would require adjustments to Clemson's records;
- Considered whether it needed to take any enforcement action against the subrecipient to ensure the subrecipient complied with Federal statutes.

While Clemson's Office of Grants and Contracts Administration now ensures it appropriately documents

compliance with Federal requirements for pass-through entities, Clemson used the Office of Sponsored Programs to prepare and issue subawards until July 2017. At such time, the responsibility transitioned to the Office of Grants and Contracts Administration and the policies and procedures were updated in June 2018. Although the Office of Sponsored Programs had policies and procedures in place to ensure compliance with Federal requirements, it did not maintain documentation to support that it had executed these procedures. As a result, we were unable to verify that Clemson had effectively evaluated and monitored 13 subawards issued across 9 NSF awards.

University Response: Clemson partially agrees with this finding. As explained to the auditors, Clemson updated our subaward processing and subrecipient monitoring processes in July 2018 to be compliant with Uniform Guidance guidelines. For any subawardee listed below where amendments or modifications were issued to the subawardee in July 2018 or after, subrecipient risk evaluations were performed prior to their release. The subawardees that were identified as having risk evaluations performed during the amendment/modification cycle included: University of [REDACTED], [REDACTED] Technical College, [REDACTED] Community College, University of [REDACTED], and [REDACTED] Institute. In all but once instance, all single audit reviews were performed prior to the July 2018 date when new procedures and processes were implemented, and the auditors found no instances of non-compliance after implementation of the July 2018 process.

Finding 8: Non-Compliance with NSF Terms and Conditions

Clemson charged two NSF awards for costs that did not comply with NSF's terms and conditions. Because these instances of non-compliance did not directly result in Clemson charging unallowable costs to NSF awards, we are not questioning any costs for these exceptions.

University Response: The University concurs with this finding.

Finding 9: Non-Compliance with Clemson Policies

Clemson did not always comply with, or did not always document its compliance with, its internal equipment, subaward, effort, documentation retention, travel, procurement, and indirect cost policies and procedures when incurring costs charged to NSF awards. Because these instances of non-compliance did not directly result in Clemson charging unallowable costs to NSF awards, we are not questioning any costs for these exceptions.

University Response: The University concurs with this finding.

Finding 10: Incorrect Application of Proposed Indirect Cost Rates

Clemson applied, and allowed its subawardees to apply, incorrect indirect cost rates to direct expenses accumulated on 25 NSF awards. For each of these awards, Clemson, or the subawardee, applied the NICRA rate that was in effect at the time it submitted the award proposal, rather than the rates included in the NICRA that was in effect as of the date of award, as required by Federal and NSF guidance.

University Response: The University concurs with this finding.

APPENDIX C: OBJECTIVES, SCOPE, AND METHODOLOGY

OBJECTIVES, SCOPE, AND METHODOLOGY

The NSF OIG Office of Audits engaged Cotton & Company LLP (referred to as “we”) to conduct an audit survey, the objective of which was to evaluate Clemson’s award management environment to determine whether any further audit work was warranted and to recommend a path forward as described in the task order performance work statement, and then to perform any additional audit work, as determined appropriate.

Accordingly, we conducted this engagement in two phases, as follows:

Audit Survey Phase: After obtaining NSF OIG’s approval for our audit plan, we performed all of the audit survey steps outlined in the plan. Generally, these steps included:

- Assessing the reliability of the general ledger data that Clemson provided by comparing the costs charged to NSF awards per Clemson’s accounting records to the reported net expenditures reflected in the ACM\$ drawdown requests.
 - Our work required us to rely on computer-processed data obtained from Clemson and NSF OIG. NSF OIG provided award data that Clemson reported through ACM\$ during our audit period.
 - We assessed the reliability of the general ledger data that Clemson provided by (1) comparing the costs charged to NSF awards per Clemson’s accounting records to the reported net expenditures reflected in the ACM\$ drawdown requests that Clemson submitted to NSF during the audit survey POP; and (2) reviewing the parameters that Clemson used to extract transaction data from its accounting systems. We identified a number of discrepancies between the amounts supported by Clemson’s general ledger and the amounts that Clemson claimed per NSF’s ACM\$ system; however, we found Clemson’s computer-processed data to be sufficiently reliable for the purposes of the audit survey, as Clemson was able to provide justification for all discrepancies identified and we did not identify any issues with the parameters that Clemson used to extract the accounting data.
 - We found NSF’s computer-processed data to be sufficiently reliable for the purposes of this audit. We did not review or test whether the data contained in, or the controls over, NSF’s databases were accurate or reliable; however, the independent auditor’s report on NSF’s financial statements for fiscal year 2020 found no reportable instances in which NSF’s financial management systems did not substantially comply with applicable requirements.
 - Clemson provided detailed transaction-level data to support all costs charged to NSF awards during the period. This data resulted in a total audit universe of \$61,075,836 in costs claimed on 315 NSF awards.

- Obtaining and reviewing all available accounting and administrative policies and procedures, external audit reports, desk review reports, and other relevant information that Clemson and NSF OIG provided, as well as any other relevant information that was available online.
- Summarizing our understanding of Federal, NSF, and Clemson-specific policies and procedures surrounding costs budgeted for and/or charged to NSF awards and specifically identifying the controls in place to ensure that costs charged to sponsored projects were reasonable, allocable, and allowable.
 - In planning and performing this audit, we considered Clemson’s internal controls, within the audit’s scope, solely to understand the directives/policies and procedures Clemson has in place to ensure charges against NSF awards were in compliance with relevant Federal regulations, NSF award terms, and Clemson policies.
- Evaluating the strengths and weaknesses of the policies and procedures that Clemson has in place to control the inherent, fraud, and control risks identified for each budget category.
- Providing Clemson with a list of 45 transactions that we selected based on our data analytics and requesting that Clemson provide documentation to support each transaction.
- Reviewing the supporting documentation that Clemson provided and requesting additional documentation as necessary to ensure that we obtained sufficient, appropriate evidence to enable us to assess the allowability of each sampled transaction under relevant Federal,⁶² NSF,⁶³ and Clemson policies.⁶⁴
- Holding virtual interviews and walkthroughs with Clemson in July 2020 to discuss payroll (including effort reporting), fringe benefits, travel, participant support costs, procurement, equipment (including performing an inventory check), the Graduate Research Fellowship Program, other direct costs (including areas such as patents, relocation, recruiting, interest, advertising/public relations, entertainment, fundraising, lobbying, selling/marketing, and training costs), grant close-out procedures, subawards, ACMS processing, indirect costs, and other general policies (including areas such as pre- and post-award costs, program income, whistleblower information, research misconduct, and conflict of interest policies).

⁶² We assessed Clemson’s compliance with 2 CFR Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards; 2 CFR Part 220, Cost Principles for Educational Institutions (Office of Management and Budget Circular A-21); and 2 CFR Part 215, Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations (Office of Management and Budget Circular A-110), as appropriate.

⁶³ We assessed Clemson’s compliance with *NSF Proposal and Award Policies and Procedures Guides* 11-1, 13-1, 14-1, 15-1, 16-1, 17-1, 18-1, and 19-1, and specific NSF award specific terms and conditions, as appropriate.

⁶⁴ We assessed Clemson’s compliance with internal Clemson policies and procedures surrounding costs budgeted for and/or charged to NSF awards.

- Preparing an organizational risk assessment that (1) summarized the results of our planning/initial fieldwork, (2) included areas of elevated risk of noncompliance that we identified in the organization's award management environment, and (3) contained our recommendations for expanded testing.

Based on the areas of elevated risk of noncompliance identified during the survey phase, we determined that we should perform further audit procedures that included:

- Conducting additional data analytics, evaluating the results of the analytics, and re-running analytical tests, as necessary.
- Selecting an additional audit sample of 76 transactions.
- Conducting additional fieldwork, which included providing the list of 76 transactions to Clemson and requesting/reviewing supporting documentation until we had obtained sufficient, appropriate evidence to enable us to assess the allowability of each sampled transaction.
- Conducting additional audit work in four areas to evaluate whether Clemson (1) inappropriately allocated computer cluster nodes to NSF awards, (2) reimbursed vendors for duplicate travel costs, (3) inappropriately paid employees using amounts that exceeded their Institutional Base Salary, and (4) inappropriately applied indirect cost rates to supplemental/incremental funding.

At the conclusion of our fieldwork, we provided a summary of our results to NSF OIG personnel for review. We also provided the summary to Clemson personnel to ensure that Clemson was aware of each of our findings and that it did not have additional documentation to support the questioned costs.

We conducted this performance audit in accordance with *Generally Accepted Government Auditing Standards*, 2018 Revision, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.



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