Performance Audit of Incurred Costs – Cary Institute of Ecosystem Studies

REPORT PREPARED BY COTTON & COMPANY ASSURANCE AND ADVISORY, LLC

NATIONAL SCIENCE FOUNDATION
OFFICE OF INSPECTOR GENERAL

October 27, 2022
OIG 23-1-001

AT A GLANCE

Performance Audit of Incurred Costs – Cary Institute of Ecosystem Studies
Report No. OIG 23-1-001
October 27, 2022

AUDIT OBJECTIVE

The National Science Foundation Office of Inspector General engaged Cotton & Company Assurance and Advisory, LLC (C&C) to conduct a performance audit of costs that the Cary Institute of Ecosystem Studies (Cary) incurred on 16 NSF awards through September 2, 2021. The auditors tested more than $711,000 of the approximately $16.6 million of costs claimed to NSF. The audit objective was to determine if costs claimed by Cary on NSF awards were allowable, allocable, reasonable, and in compliance with NSF award terms and conditions and federal financial assistance requirements. A full description of the audit's objective, scope, and methodology is attached to the report as Appendix B.

AUDIT RESULTS

The report highlights concerns about Cary's compliance with certain federal and NSF award requirements, NSF award terms and conditions, and Cary policies. The auditors questioned $33,024 of costs claimed by Cary during the audit period. Specifically, the auditors found $15,918 of inadequately supported expenses, $8,709 in unallowable expenses, and $8,397 related to indirect cost rates not appropriately adjusted. The auditors also identified four compliance related findings for which there were no questioned costs: non-compliance with federal requirements for pass-through entities, indirect cost rates applied using a non-Negotiated Indirect Cost Rate Agreement (NICRA) approved rate, indirect cost rates not applied to the appropriate Modified Total Direct Cost base, and fringe benefits not charged consistent with the NICRA. C&C is responsible for the attached report and the conclusions expressed in it. NSF OIG does not express any opinion on the conclusions presented in C&C's audit report.

RECOMMENDATIONS

The auditors included 7 findings in the report with associated recommendations for NSF to resolve the questioned costs and to ensure Cary strengthens administrative and management controls.

AUDITEE RESPONSE

Cary disagreed with the majority of the findings in the report. Cary's response is attached in its entirety as Appendix A.

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

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

MEMORANDUM

DATE: October 27, 2022

TO: Alex Wynnyk
Acting Director
Division of Institution and Award Support

Jamie French
Director
Division of Grants and Agreements

FROM: for Mark Bell
Assistant Inspector General
Office of Audits

LAURA A RAINEY
Digitally signed by LAURA A RAINEY
Date: 2022.10.27 10:45:25 -04'00'

SUBJECT: Audit Report No. 23-1-001, Cary Institute of Ecosystem Studies

This memorandum transmits the Cotton & Company Assurance and Advisory, LLC (C&C) report for the audit of costs charged by the Cary Institute of Ecosystem Studies (Cary) to its sponsored agreements with the National Science Foundation on 16 NSF awards through September 2, 2021. The audit encompassed more than $711,000 of the approximately $16.6 million of costs claimed to NSF during the period. The audit objective was to determine if costs claimed by Cary on NSF awards were allowable, allocable, reasonable, and in compliance with NSF awards terms and conditions and federal financial assistance requirements. A full description of the audit's objective, scope, and methodology is attached to the report as Appendix B.

Please coordinate with our office during the 6-month resolution period, as specified by OMB 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 Jae Kim at 703.292.7100 or OIGpublicaffairs@nsf.gov.

Attachment

cc:

Stephen Willard	Karen Marrongelle	Charlotte Grant-Cobb	Ken Lish
Dan Reed	Christina Sarris	Allison Lerner	Jae Kim
Victor McCrary	Teresa Grancorvitz	Lisa Vonder Haar	Billy McCain
John Veysey	Janis Coughlin-Piester	Ken Chason	Jennifer Kendrick
Ann Bushmiller	Rochelle Ray	Dan Buchtel	Louise Nelson
			Karen Scott

Cotton
A SIKICH. COMPANY

333 John Carlyle Street, Suite 500 | Alexandria, VA 22314
P: 703.836.6701 | F: 703.836.0941 | www.cottoncpa.com

EXECUTIVE SUMMARY

The Cotton & Company audit team determined that the Cary Institute of Ecosystem Studies (Cary) needs improved oversight of the allocation and documentation of expenses charged to NSF awards to ensure costs claimed are reasonable, allocable, and allowable in accordance with all federal and NSF regulations, NSF award terms and conditions, and Cary policies. Specifically, the audit report includes seven findings and a total of $33,024 in questioned costs.

AUDIT OBJECTIVES

The National Science Foundation Office of Inspector General engaged Cotton & Company Assurance and Advisory, LLC to conduct a performance audit of costs that Cary incurred on 16 awards that either ended or were close to the end of their period of performance. The audit objectives included evaluating Cary's award management environment to determine whether any further audit work was warranted and performing additional audit work, as determined appropriate. We have attached a full description of the audit's objectives, scope, and methodology as Appendix B.

AUDIT CRITERIA

The audit team assessed Cary's compliance with relevant federal regulations (i.e., 2 Code of Federal Regulations [CFR] 200 and 2 CFR 220); NSF Proposal and Award Policies and Procedures Guides (PAPPGs) 14-1, 15-1, 16-1, 17-1, 18-1, 19-1, and 20-1; NSF award terms and conditions; and Cary's policies and procedures. The audit team included references to relevant criteria within each finding and defined key terms in the Glossary located in Appendix E.

We conducted this performance audit in accordance with *Generally Accepted Government Auditing Standards* (GAGAS) issued by the Comptroller General of the United States.

AUDIT FINDINGS

As summarized in Appendix C, the auditors identified and questioned $33,024 of direct and indirect costs that Cary inappropriately claimed during the audit period, including:

- $15,918 of inadequately supported expenses.
- $8,709 of unallowable expenses.
- $8,397 of indirect cost rates not appropriately adjusted.

The audit report also includes four compliance-related findings for which the auditors did not question any costs:

- Non-compliance with federal requirements for pass-through entities
- Indirect cost rates applied using a non-Negotiated Indirect Cost Rate Agreement (NICRA) approved rate
- Indirect cost rates not applied to the appropriate Modified Total Direct Cost (MTDC) base
- Fringe benefits not charged consistent with NICRA

RECOMMENDATIONS

The audit report includes 15 recommendations for NSF's Director of the Division of Institution and Award Support related to resolving the $33,024 in questioned costs and ensuring Cary strengthens its award management environment, as summarized in Appendix D.

AUDITEE RESPONSE

Cary disagreed with the majority of the findings included in the audit report. Specifically, although Cary agreed to reimburse NSF for $10,038 in questioned costs, it disagreed with the remaining $22,986. Cary's response is attached in its entirety to the report as Appendix A.

Table of Contents

Abbreviations

ACM$	Award Cash Management $ervice
[redacted]	[redacted] Public Schools
Cary	Cary Institute of Ecosystem Studies
CFR	Code of Federal Regulations
[redacted]	Trustees of [redacted] College
FY	Fiscal Year
GAGAS	Generally Accepted Government Auditing Standards
GL	General Ledger
MTDC	Modified Total Direct Costs
NICRA	Negotiated Indirect Cost Rate Agreement
NSF	National Science Foundation
OIG	Office of Inspector General
PAPPG	Proposal and Award Policies and Procedures Guide
[redacted]	Research Foundation [redacted] University [redacted]
[redacted]	University [redacted]
[redacted]	University [redacted]
USDA	United States Department of Agriculture

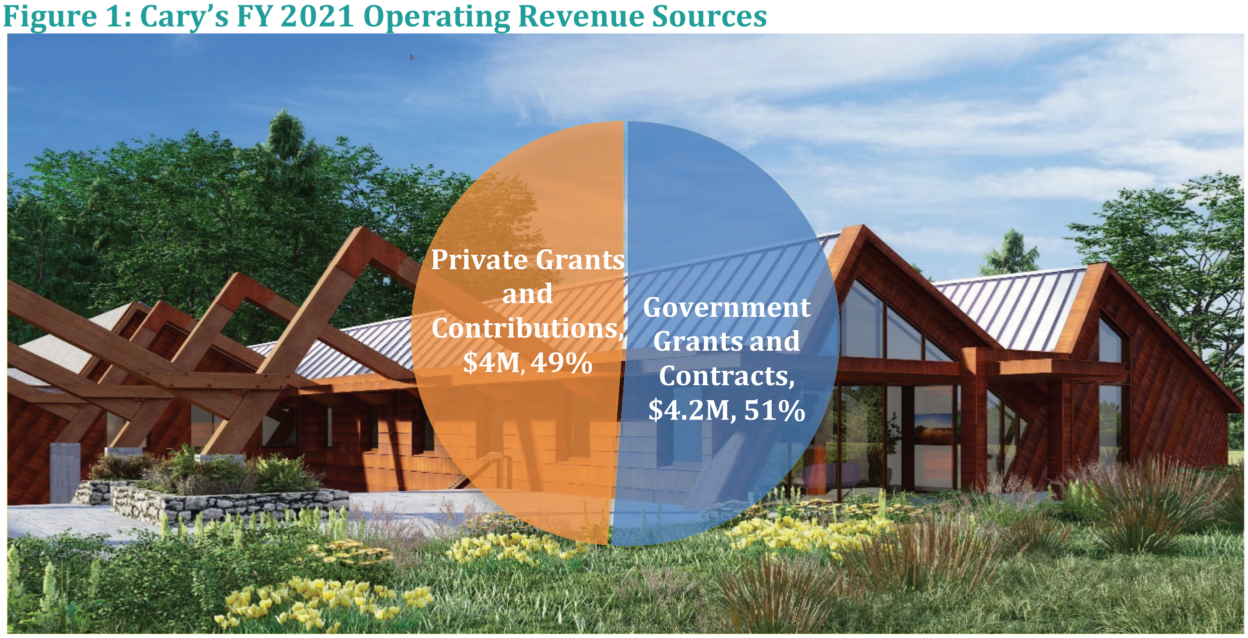
BACKGROUND

The National Science Foundation is an independent federal agency created "to 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 funds research and education in science and engineering by awarding grants and contracts to educational and research institutions throughout the United States.

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 Assurance and Advisory, LLC (referred to as "we") to conduct a performance audit of costs incurred by the Cary Institute of Ecosystem Studies (Cary). Located in Millbrook, New York, Cary is an independent non-profit that supports basic environmental research with the potential for transformative impact. In fiscal year (FY) 2021, Cary reported $8.2 million in grant-related operating revenues, with $4.2 million of that coming from government grants and contracts, including NSF, as illustrated in Figure 1.

Figure 1: Cary's FY 2021 Operating Revenue Sources



Source: The chart data is available on Cary's website (https://www.caryinstitute.org/sites/default/files/public/downloads/financial_stmts_fy_21.pdf). The photo of Cary's headquarters is publicly available on its website (https://www.caryinstitute.org/news-insights/press-release/cary-institute-embarks-reimagining-headquarters).

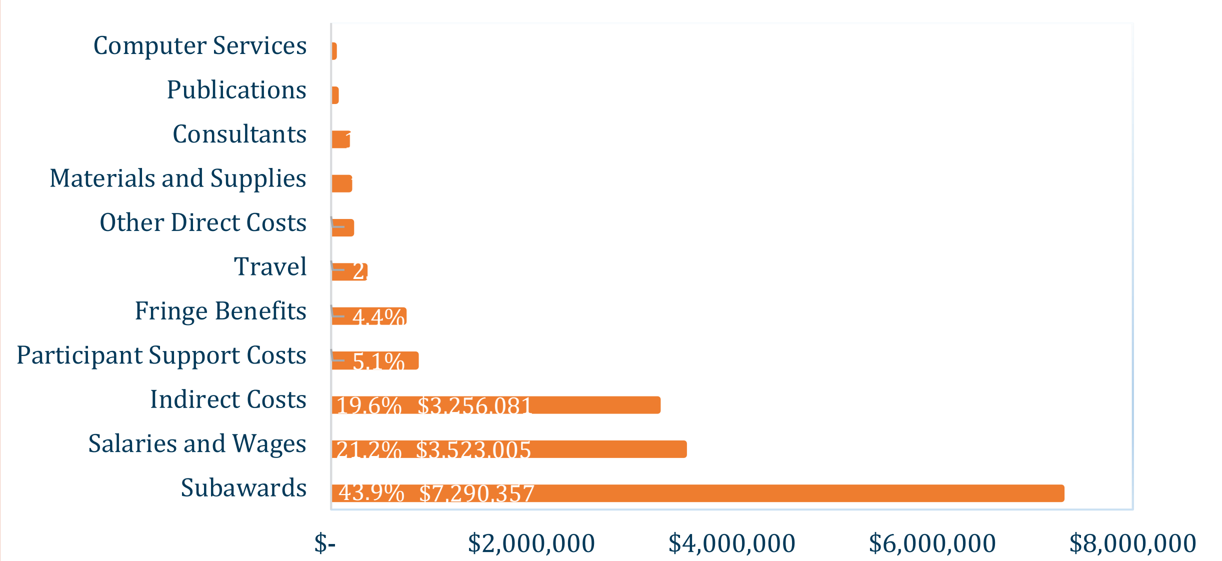
AUDIT SCOPE

This performance audit—conducted under Order No. 140D0421F0621—was designed to meet the objectives identified in the Objectives, Scope, and Methodology section of this report (**Appendix B**) and was conducted in accordance with *Generally Accepted Government Auditing Standards,* issued by the Comptroller General of the United States.

The objectives of this performance audit were to evaluate Cary's award management environment, to determine if costs claimed on NSF awards were allowable, allocable, reasonable, and in compliance with relevant federal and NSF regulations, to determine whether any further audit work was warranted, and to perform any additional audit work, as determined appropriate. **Appendix B** provides detailed information regarding the audit objectives, scope, and methodology used for this engagement.

As illustrated in Figure 2, Cary provided general ledger (GL) data to support the $16.6 million in expenses it claimed on 16 NSF awards from each award's inception through September 2, 2021.

Figure 2: Costs Cary Claimed on 16 NSF Awards[1]



Source: Auditor analysis of accounting data Cary provided, illustrating the total costs ($16,608,485) by expense type, to support costs incurred on the 16 NSF awards included within our audit scope during the audit period.

We judgmentally selected 50 transactions totaling $711,330[2] (see Table 1) and evaluated supporting documentation to determine whether the costs claimed on the NSF awards were **allocable**, **allowable**, and **reasonable**, and whether they were in conformity with

[1] The total award-related expenses that Cary reported in its GL reconciled to the total cash amount it drew from NSF's Award Cash Management $ervice (ACM$), without exception; therefore, we determined that the GL data was appropriate for the purposes of this engagement.

[2] The $711,330 represents the total value of the 50 transactions selected for transaction-based testing; it does not represent the dollar base of the total costs reviewed during the audit.

NSF award terms and conditions, organizational policies, and applicable federal financial assistance requirements.

Table 1: Summary of Selected Transactions

Budget Category	Transaction Count	Expense Amount[3]
Subawards	9	$501,173
Salaries and Wages	10	40,487
Consultants	4	39,459
Participant Support Costs	4	31,052
Travel	4	28,511
Other Direct Costs	8	23,564
Indirect Costs	2	18,282
Materials and Supplies	3	13,034
Publications	2	9,273
Fringe Benefits	2	3,288
Computer Services	2	3,207
Total	**50**	**$711,330**

Source: Auditor summary of selected transactions.

AUDIT RESULTS

We identified and questioned $33,024 in costs that Cary charged to nine NSF awards. We also identified expenses that Cary charged to eight NSF awards that did not result in questioned costs, but resulted in non-compliance with federal regulations, NSF guidance, and/or Cary-specific policies. See Table 2 for a summary of questioned costs by finding area; **Appendix C** for a summary of questioned costs by NSF award; and **Appendix D** for a summary of all recommendations.

Table 2: Summary of Questioned Costs by Finding Area

Finding Description	Questioned Costs
Inadequately Supported Expenses	$15,918
Unallowable Expenses	8,709
Indirect Cost Rates Not Appropriately Adjusted	8,397
Non-Compliance with Federal Requirements for Pass-Through Entities	-
Indirect Cost Rates Applied Using Non-Negotiated Indirect Cost Rate Agreement (NICRA) Approved Rates	-
Indirect Cost Rate Not Applied to the Appropriate Modified Total Direct Cost (MTDC) Base	-
Fringe Benefits Not Charged Consistent with NICRA	-
Total	**$33,024**

Source: Auditor summary of findings identified.

[3] The expense amounts reported represent the total dollar value of the transactions selected for our sample; they do not include the total **fringe benefit** or **indirect costs** applied to the sampled transactions, which we also tested for allowability.

We made 15 recommendations for NSF's Director of the Division of Institution and Award Support related to resolving the $33,024 in questioned costs and ensuring Cary strengthens its administrative and management policies and procedures for monitoring federal funds. We communicated the results of our audit and the related findings and recommendations to Cary and NSF OIG. We included Cary's response to this report in its entirety in **Appendix A**.

FINDING 1: INADEQUATELY SUPPORTED EXPENSES

Cary did not provide adequate documentation to support the allocability, allowability, and reasonableness of $15,918 in expenses charged to two NSF awards during the audit period, as required for the costs to be allowable, per federal regulations[4] and **NSF Proposal and Award Policies and Procedures Guides (PAPPGs)**.[5]

Table 3: Expenses with Insufficient Documentation

Expense Date	NSF Award No.	Amount	Insufficient Documentation to Support the Allowability of	Notes
December 2018	[redacted]	$7,574	Leave Payout Expenses	a
November 2019	[redacted]	6,739	Publication Expenses	b
April 2021	[redacted]	1,605	Service Center Expenses	c

Source: Auditor summary of identified exceptions.

a) In December 2018, Cary charged NSF Award No. [redacted] for $7,574 representing 56.50 percent of a terminal leave payout it made to an employee who left Cary. Although this employee dedicated effort to this award, Cary did not provide documentation to support the **allocation** methodology it used to determine that 56.50 percent of the employee's leave payout was allocable to this award.[6] Specifically, although Cary noted that it considered a number of factors to ensure the terminal leave payment was fairly distributed, Cary did not maintain any documentation to support the allocation methodology considered when the terminal leave was earned and/or the number of projects the employee was working on when their employment was terminated.

[4] According to 2 Code of Federal Regulations (CFR) § 200.403, *Factors affecting allowability of costs*, (g), for a cost to be allowable, it must be adequately documented. Additionally, 2 CFR § 200.405, *Allocable costs*, (a) states that a cost is allocable to a particular federal award or other cost objective if the goods or services involved are chargeable or assignable to that federal award or cost objective in accordance with relative benefits received.

[5] NSF PAPPGs 15-1, Part II, Chapter V, Section A, and 17-1, Part II, Chapter X, Section A, *Basic Considerations*, state that expenditures under NSF cost-reimbursement grants are governed by the federal cost principles and must conform with NSF policies where articulated in the grant terms and conditions, grant special provisions, and grantee internal policies.

[6] According to 2 CFR § 200.430, *Compensation – personal services*, (i), charges to federal awards for salaries and wages must be based on records that accurately reflect the work performed.

b) In November 2019, Cary charged NSF Award No. [redacted] for $6,739 for the open access fees it incurred to publish a research article. Although the **publication**[7] acknowledged support from NSF Award No. [redacted] the publication also identified NSF Award No. [redacted] as a sponsor. Although Cary indicated that it did not allocate the publication expense to NSF Award No. [redacted] because the award did not include any funding for publications, because NSF Award No. [redacted] also did not include any funding for publications, and because Cary has rebudget authority, we determined that Cary's justification was not sufficient to support that 100 percent of the publication costs are allocable to NSF Award No. [redacted]

c) In April 2021, Cary charged NSF Award No. [redacted] for $1,605 in laboratory fees billed by Cary's Rachel L. Carson Analytical Laboratory, a **specialized service facility**. Although Cary provided an invoice to support the rate at which it billed the laboratory fees, it did not provide documentation to support that the specialized service center rates included on the invoice—which were set in 2016—were calculated in a manner consistent with federal requirements.[8]

Conclusion

Cary did not have appropriate policies, procedures, or internal controls in place to ensure it received, created, and/or maintained adequate documentation to support the allowability or allocability of all costs charged to federal awards. Specifically, Cary's policies, procedures, and internal controls did not ensure leave payout, publication, and service center expenses were always adequately supported as allowable costs on NSF awards.

We are therefore questioning $15,918 charged to two NSF awards. Cary concurred with $9,179 of the questioned costs but disagreed with the remaining $6,739, as illustrated in Table 4.

Table 4: Finding 1 Summary: Inadequately Supported Expenses

NSF Award No.	Description	Fiscal Year(s)	Questioned Costs			
			Direct	Indirect	Total	Cary Agreed to Reimburse
[redacted]	December 2018 Leave Payout	2019	$5,508	$2,066	$7,574	$7,574
[redacted]	November 2019 Publication	2019	4,273	2,466	6,739	-

[7] According to 2 CFR § 200.461, *Publication and printing costs*, (b), page charges for professional journal publications are allowable where: (1) the publications report work supported by the federal government; and (2) the charges are levied impartially on all items published by the journal, whether or not under a federal award.

[8] According to 2 CFR § 200.468, *Specialized service facilities*, (b), the costs of specialized services 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. Subsequently, Section (b)(2) states rates must be adjusted at least biennially and must take into consideration over/under applied costs of the previous period(s).

NSF Award No.	Description	Fiscal Year(s)	Questioned Costs			
			Direct	Indirect	Total	Cary Agreed to Reimburse
[redacted]	April 2021 Service Center Expense	2021	1,018	587	1,605	1,605
Total			**$10,799**	**$5,119**	**$15,918**	**$9,179**

Source: Auditor summary of identified exceptions.

Recommendations

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

1.1. Resolve the $6,739 in questioned publication expenses and direct Cary to repay or otherwise remove the sustained questioned costs from its NSF awards.

1.2. Direct Cary to provide documentation supporting that it has repaid or otherwise credited the $9,179 of questioned leave payout and service center expenses for which it has agreed to reimburse NSF.

1.3. Direct Cary to introduce additional controls to help ensure that it appropriately creates and maintains all documentation necessary to support the allowability of leave payout, publication, and service center expenses charged to NSF awards. Updated procedures could include:

- Implementing a formal methodology outlining how to determine what percentage of leave payout expenses are allowable/allocable on NSF awards. This methodology should consider the employee's level of effort on NSF awards throughout the period leave was earned.

- Implementing a standard documentation and retention process to support the allocation of publication costs that benefit multiple federal awards.

- Performing—and documenting the performance of—bi-annual reviews of rates established by its internal service centers to ensure rates produced by each service center comply with federal requirements.

Cary Institute of Ecosystem Studies Response: Cary agreed to reimburse NSF for $9,179 in inadequately supported leave payout and service center expenses but disagreed with the remaining $6,739 in questioned publication costs. Specifically:

- With regard to the $6,739 in questioned November 2019 publication expenses charged to NSF Award No. [redacted] Cary disagreed that it should have to reimburse NSF for the expenses, as it does not believe NSF has provided adequate guidance on how publication charges should be allocated among NSF awards that are acknowledged in publications. Specifically, Cary stated that although NSF Program

Officers encourage the acknowledgement of any NSF award that contributed to the research, NSF guidance is unclear regarding how to allocate funds if awards are closed, not associated with Cary, and/or only have limited funding available. Additionally, Cary noted that if publications should only acknowledge awards that have been charged for the cost of that publication, NSF's PAPPG instructions, and/or the terms and conditions associated with awards should include that information.

Auditors' Additional Comments: Although Cary believes that the $6,739 in questioned publication costs should be allowable based on a lack of guidance from NSF, our position regarding this finding has not changed. Specifically, because federal regulations state that costs should be allocated to awards consistent with the relative benefits received,[9] and because NSF PAPPGs note that grantees are responsible for assuring the acknowledgment of NSF support,[10] we believe Cary had sufficient guidance available to appropriately allocate the publication expense. As Cary had access to sufficient guidance and did not maintain documentation to support the publication expense was appropriately allocated based on the relative benefits received by each NSF award, our position regarding this finding has not changed.

FINDING 2: UNALLOWABLE EXPENSES

Cary charged two NSF awards for a total of $8,709 incurred for publication and airfare expenses that are unallowable under federal regulations[11] and NSF PAPPGs.[12]

Table 5: Expenses Not Allowable per Federal Regulations

Expense Date	NSF Award No.	Unallowable Expense	Unallowable Expenses Associated with	Notes
January 2019	[redacted]	$7,850	Publication Expense	**a**
January 2019		859	Airfare on a Non-U.S. Flag Carrier	**b**

Source: Auditor summary of identified exceptions.

a) In January 2019, Cary charged NSF Award No. [redacted] for $7,850 in costs it paid to [redacted] University to contribute to the publication of a book titled [redacted] Although the publication acknowledged support from NSF, this expense is not

[9] 2 CFR § 200.405, *Allocable costs*, (a) states that a cost is allocable to a particular Federal award or other cost objective if the goods or services involved are chargeable or assignable to that Federal award or cost objective in accordance with relative benefits received.

[10] NSF PAPPG 15-1, Part II, Chapter VI, Section E., *Publication/Distribution of Grant Materials*, 4.a states that the grantee is responsible for assuring that an acknowledgment of NSF support is made in any publication (including web pages) of any material based on or developed under an NSF project.

[11] According to 2 CFR § 200.403, *Factors affecting allowability of costs*, (a), in order for a cost to be allowable, it must be reasonable for the performance of the federal award and must be allocable to the award charged.

[12] NSF PAPPGs 17-1 and 18-1, Part II, Chapter X, Section A, *Basic Considerations*, state that expenditures under NSF cost-reimbursement grants are governed by the federal cost principles and must conform with NSF policies where articulated in the grant terms and conditions, grant special provisions, and grantee internal policies.

allowable per federal regulations and NSF guidance because the specific NSF award charged was not identified in the publication.[13]

b) In January 2019, Cary charged NSF Award No. [redacted] for $859 in unallowable airfare expenses for a flight booked on non-U.S.-flag carrier airline [redacted] Airlines. Although the flight allowed a participant to **travel** from [redacted] to attend an NSF-sponsored conference in [redacted] [redacted] the airfare is unallowable because it did not comply with the **Fly America Act**.[14]

Conclusion

Cary did not have sufficient policies and procedures or internal controls in place to ensure it only charged allowable costs to NSF awards. Specifically, Cary's procedures did not always ensure that it only charged NSF awards for publications that appropriately identified the sponsoring NSF award number or for air travel that complied with the Fly America Act.

We are therefore questioning $8,709 of unallowable expenses charged to two NSF awards. Cary concurred with $859 of the questioned costs but disagreed with the remaining $7,850, as illustrated in Table 6.

Table 6: Finding 2 Summary: Unallowable Expenses

NSF Award No.	Description	Fiscal Year(s)	Questioned Costs			
			Direct	Indirect	Total	Cary Agreed to Reimburse
[redacted]	January 2019 Publication	2019	$5,000	$2,850	$7,850	$0
[redacted]	January 2019 Airfare	2019	859	0	859	859
Total			**$5,859**	**$2,850**	**$8,709**	**$859**

Source: Auditor summary of identified exceptions.

Recommendations

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

2.1. Resolve the $7,850 in questioned publication expenses and direct Cary to repay or otherwise remove the sustained questioned costs from its NSF awards.

[13] According to NSF's *Grant General Conditions*, the grantee is responsible for assuring that an acknowledgment of NSF support is made in any publication (including World Wide Web pages) of any material based on or developed under this project. Specifically, NSF's guidance notes that NSF's support should be recognized in the following terms: "This material is based upon work supported by the National Science Foundation under Grant No. (NSF grant number)."

[14] NSF PAPPG 17-1, Part II, Chapter XI, Section F.1.b, *Use of US-Flag Air Carriers*, states that, in accordance with the Fly America Act, any air transportation to, from, between, or within a country other than the U.S. 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 U.S.-flag air carrier if service provided by such a carrier is available.

2.2. Direct Cary to provide documentation supporting that it has repaid or otherwise credited the $859 of questioned airfare costs for which it has agreed to reimburse NSF.

2.3. Direct Cary to establish clear guidance regarding the allowability of publication expenses on sponsored projects, including the requirement regarding how to acknowledge NSF funding sources.

2.4. Direct Cary to strengthen its processes and procedures surrounding the booking and approval of foreign travel expenses. Updated procedures could include implementing additional reviews for all foreign airfare purchases that require the reviewer to verify purchased airfare is compliant with the Fly America Act before charging the expense to an NSF award.

Cary Institute of Ecosystem Studies Response: Cary agreed to reimburse NSF for the $859 in unallowable airfare expenses but disagreed with the remaining $7,850 in questioned costs. Specifically:

- With regard to the $7,850 in questioned January 2019 publication expenses, Cary disagreed with the finding as the publishing press did not allow the author to use award numbers in the Acknowledgement section of the publication. Further, Cary noted that the reference to, "This material is based upon work supported by the National Science Foundation under Grant No. (NSF grant number)," in Part II, Chapter XI., Section E., *Publication/Distribution of Grant Materials,* was taken as a suggestion and not a requirement.

Auditors' Additional Comments: Although Cary believes that the $7,850 in questioned publication costs should be allowable, because Cary did not appropriately acknowledge NSF support as required per NSF's *Grant General Conditions,*[15] our position regarding this finding has not changed.

FINDING 3: INDIRECT COSTS RATES NOT APPROPRIATELY ADJUSTED

Cary overcharged at least $8,397 in indirect costs to nine NSF awards as a result of inappropriately charging indirect costs to NSF awards. Specifically, Cary elected to apply the indirect cost rates included within the **Negotiated Indirect Cost Rate** Agreements (NICRAs) in effect when NSF grants were awarded, rather than applying the NICRA rates in

[15] According to NSF's Grant General Conditions effective March 1, 2018, Article 27, *Publications*, the grantee is responsible for assuring that an acknowledgment of NSF support is made in any publication (including World Wide Web pages) of any material based on or developed under this project. Specifically, NSF's guidance notes that NSF's support should be recognized in the following terms: "This material is based upon work supported by the National Science Foundation under Grant No. (NSF grant number)."

effect when the expenses were incurred, consistent with Cary's NICRAs,[16] as illustrated in Table 7.

Table 7: Indirect Cost Rates Inappropriately Applied

[redacted]	57.70%	2017	57.00	$81	a
		2019	51.38	3,236	
		2021	47.19	107	
	37.50%	2019	51.38	0[17]	
[redacted]					
[redacted]	57.00%	2020	51.38	1,199	c
		2022	47.19	173	
[redacted]	57.00%	2020	51.38	86	d
		2021	47.19	702	
[redacted]	57.70%	2021	47.19	522	e
[redacted]	57.00%	2019	51.38	281	f
		2022	47.19	200	
[redacted]	57.70%	2019	51.38	138	g
		2021	47.19	294	
[redacted]	57.70%	2020	51.38	270	h
	57.00%	2020	51.38	84	i

Source: Auditor summary of identified exceptions.

a) Cary charged indirect costs to NSF Award No. [redacted] using the 57.70 percent on-site and 37.50 percent off-site predetermined indirect cost rates effective when the NSF award proposal was submitted,[18] rather than using the predetermined rates in effect when it incurred costs on this award. As a result, Cary overcharged this NSF award for $81, $3,236, and $107 in indirect costs in 2017, 2019, and 2021, when it should have been applying 57.00, 51.38, and 47.19 percent indirect cost rates, respectively.

b) Cary charged indirect costs to NSF Award No. [redacted] using the 57.00 percent predetermined indirect cost rate effective when the NSF award proposal was

[16] Cary's NICRA dated April 10, 2014, states that the predetermined indirect cost rate effective July 1, 2014, to June 30, 2016, for on-site locations is 57.70 percent and is 37.50 percent for off-site locations. Its NICRA dated October 31, 2016, states that the predetermined indirect cost rate effective from July 1, 2016, to June 30, 2018, is 57.00 percent for all locations. Cary's NICRA dated April 8, 2019, states that the predetermined indirect cost rate effective from July 1, 2018, to June 30, 2020, is 51.38 percent for all locations. Cary's NICRA dated July 1, 2020, states that the predetermined indirect cost rate effective July 1, 2020, to June 30, 2022, is 47.19 percent for all locations.

[17] As the indirect cost rate Cary applied was lower than the allowable rate, we did not identify any inappropriately applied indirect costs when it applied the 37.50 percent indirect cost rate.

[18] Cary submitted its NSF Award No. [redacted] proposal on March 4, 2016, (or within the July 1, 2014, to June 30, 2016, period identified in its April 10, 2014, NICRA) which supported that indirect costs should be applied to on-site activities at 57.70 percent and to off-site activities at 37.50 percent.

submitted,[19] rather than using the predetermined rates in effect when it incurred costs on this award. As a result, Cary overcharged this NSF award for at least $277 and $1,405 in indirect costs in 2019 and 2020, when it should have been applying 51.38 and 47.19 percent indirect cost rates, respectively.

c) Cary charged indirect costs to NSF Award No. [redacted] using the 57.00 percent predetermined indirect cost rate effective when the NSF award proposal was submitted,[20] rather than using the predetermined rates in effect when it incurred costs on this award. As a result, Cary overcharged this NSF award for at least $1,199 and $173 in indirect costs in 2020 and 2022 when it should have been applying 51.38 and 47.19 percent indirect cost rates, respectively.

d) Cary charged indirect costs to NSF Award No. [redacted] using the 57.00 percent predetermined indirect cost rate effective when the NSF award proposal was submitted,[21] rather than using the predetermined rates in effect when it incurred costs on this award. As a result, Cary overcharged this NSF award for at least $86 and $702 in indirect costs in 2020 and 2021 when it should have been applying 51.38 and 47.19 percent indirect cost rates, respectively.

e) Cary charged indirect costs to NSF Award No. [redacted] using the 57.70 percent on-site predetermined indirect cost rate effective when the NSF award proposal was submitted,[22] rather than using the predetermined rates in effect when it incurred costs on this award. As a result, Cary overcharged this NSF award for at least $522 in indirect costs in 2021 when it should have been applying a 47.19 percent indirect cost rate.

f) Cary charged indirect costs to NSF Award No. [redacted] using the 57.00 percent predetermined indirect cost rate effective when the NSF award proposal was submitted,[23] rather than using the predetermined rates in effect when it incurred costs on this award. As a result, Cary overcharged this NSF award for at least $281

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[19] Cary submitted its NSF Award No. [redacted] proposal on December 5, 2016, (or within the July 1, 2016, to June 30, 2018, period identified in its October 31, 2016, NICRA) which supported that indirect costs should be applied at 57.00 percent.

[20] Cary submitted its NSF Award No. [redacted] proposal on November 15, 2016, (or within the July 1, 2016, to June 30, 2018, period identified in its October 31, 2016, NICRA) which supported that indirect costs should be applied at 57.00 percent.

[21] Cary submitted its NSF Award No. [redacted] proposal on November 16, 2016, (or within the July 1, 2016, to June 30, 2018, period identified in its October 31, 2016, NICRA) which supported that indirect costs should be applied at 57.00 percent.

[22] Cary submitted its NSF Award No. [redacted] proposal on October 17, 2016, when it was continuing to use its April 10, 2014, NICRA which supported that indirect costs should be applied to on-site activities at 57.70 percent.

[23] Cary submitted its NSF Award No. [redacted] proposal on September 19, 2018, when it was continuing to use its October 31, 2016, NICRA which supported that indirect costs should be applied at 57.00 percent.

and $200 in indirect costs in 2019 and 2022 when it should have been applying 51.38 and 47.19 percent indirect cost rates, respectively.

g) Cary charged indirect costs to NSF Award No. [redacted] using the 57.70 percent on-site predetermined indirect cost rate effective when the NSF award proposal was submitted,[24] rather than using the predetermined rates in effect when it incurred costs on this award. As a result, Cary overcharged this NSF award for at least $138 and $294 in indirect costs in 2019 and 2021 when it should have been applying 51.38 and 47.19 percent indirect cost rates, respectively.

h) Cary charged indirect costs to NSF Award No. [redacted] using the 57.70 percent on-site predetermined indirect cost rate effective when the NSF award proposal was submitted,[25] rather than using the predetermined rates in effect when it incurred costs on this award. As a result, Cary overcharged this NSF award for at least $270 in indirect costs in 2020 when it should have been applying a 51.38 percent indirect cost rate.

i) Cary charged indirect costs to NSF Award No. [redacted] using the 57.00 percent predetermined indirect cost rate effective when the NSF award proposal was submitted,[26] rather than using the predetermined rates in effect when it incurred costs on this award. As a result, Cary overcharged this NSF award for at least $84 in indirect costs in 2020 when it should have been applying a 51.38 percent indirect cost rate.

Conclusion

Cary elected to charge indirect costs using the rates included in the NICRAs applicable at the time NSF proposals were submitted throughout the life of the NSF awards, as is required for institutions of higher education.[27] Specifically, although Cary, as a not-for-profit institution, is not required to use the indirect rates applicable at the time the grants were awarded throughout the life of the award, it believed it could elect to do so based on guidance it received from NSF representatives.

Although we are unable to determine the total amount of indirect costs Cary overcharged to each NSF award as a result of Cary applying indirect cost rates using this methodology,

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[24] Cary submitted its NSF Award No. [redacted] proposal on July 31, 2015, (or within the July 1, 2014, to June 30, 2016, period identified in its April 10, 2014, NICRA) which supported that indirect costs should be applied to on-site activities at 57.70 percent.

[25] Cary submitted its NSF Award No. [redacted] proposal on July 31, 2014, (or within the July 1, 2014, to June 30, 2016, period identified in its April 10, 2014, NICRA) which supported that indirect costs should be applied to on-site activities at 57.70 percent.

[26] Cary submitted its NSF Award No. [redacted] proposal on August 2, 2017, (or within the July 1, 2016, to June 30, 2018, period identified in its October 31, 2016, NICRA) which supported that indirect costs should be applied at 57.00 percent.

[27] Cary did not comply with federal guidance for institutes of higher education, as it inappropriately used the indirect cost rates in effect at the time it submitted its NSF award proposals rather than using the indirect cost rates applicable when each grant was awarded.

we are questioning the $8,397 in indirect costs Cary overcharged to eight NSF awards that are not currently being questioned in previous findings, as illustrated in Table 8.

Table 8: Finding 3 Summary: Indirect Cost Rates Not Appropriately Adjusted

NSF Award Number	Rate (%) at which Indirect Costs were Applied	Rate (%) at which Indirect Costs Should Have Been Applied	Fiscal Year(s)	Questioned Costs	Cary Agreed to Reimburse
[redacted]	57.70	57.00	2017	$81	$0
		51.38	2019	3,236	0
		47.19	2021	0[28]	0
	37.50	51.38	2019	0[29]	0
[redacted]	57.00	51.38	2019	277	0
		51.38	2020	1,405	0
[redacted]	57.00	51.38	2020	1,199	0
		47.19	2022	173	0
[redacted]	57.00	51.38	2020	86	0
		47.19	2021	702	0
[redacted]	57.70	47.19	2021	522	0
[redacted]	57.00	51.38	2019	0[30]	0
		47.19	2022	200	0
[redacted]	57.70	51.38	2019	138	0
		47.19	2021	294	0
[redacted]	57.70	51.38	2020	0[31]	0
	57.00	51.38	2020	84	0
Total				**$8,397**	**$0**

Source: Auditor summary of identified exception.

Recommendations

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

3.1. Resolve the $8,397 in questioned indirect costs for which Cary has not agreed to reimburse NSF and direct it to repay or otherwise remove the sustained questioned costs from its NSF awards.

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[28] Although $107 is identified in Table 7 as the overapplied amount, we have not questioned these costs in this finding because these indirect costs are part of the $1,605 in indirect costs applied to inadequately supported service center expenses included in Finding 1.

[29] As the indirect cost rate Cary applied was lower than the allowable rate, we did not identify any inappropriately applied indirect costs when it applied the 37.50 percent indirect cost rate.

[30] Although $281 is identified in Table 7 as the overapplied amount, we have not questioned these costs in this finding because these indirect costs are part of the $2,850 in indirect costs applied to unallowable publication costs included in Finding 2.

[31] Although $270 is identified in Table 7 as the overapplied amount, we have not questioned these costs in this finding because these indirect costs are part of the $2,466 in indirect costs applied to inadequately supported publication expenses included in Finding 1.

3.2. Direct Cary to identify and remove all indirect costs that were overcharged to the sampled NSF awards because it charged indirect costs by applying rates above those included in the Negotiated Indirect Cost Rate Agreements applicable when the direct expenses were incurred on the sampled NSF awards.

3.3. Direct Cary to update its *Financial Management Procedures* to require that indirect costs be charged to NSF awards using the predetermined rates in effect when it incurs expenses rather than using the predetermined rates in effect at the time NSF grants were awarded, consistent with its Negotiated Indirect Cost Rate Agreement.

Cary Institute of Ecosystem Studies Response: Cary disagreed with this finding, stating that it relied on, and followed, the guidance that was previously provided by NSF representatives.

Auditors' Additional Comments: Our position regarding this finding has not changed. Although Cary charged indirect costs in a manner consistent with the approach allowable for an institute of higher education, because Cary is a not-for-profit institution its indirect cost rate methodology should require it to adjust the indirect cost rates effective when proposals are submitted to the rates in effect when it incurs costs on each award. As Cary's current methodology resulted in it charging NSF for indirect costs applied using indirect cost rates that were higher than those allowable per its NICRAs, our position regarding this finding has not changed.

Finding 4: Non-compliance with Federal Requirements for Pass-through Entities

We identified eight instances in which Cary did not appropriately document that it conducted a risk assessment prior to issuing **subawards** to perform services related to five NSF awards in compliance with federal requirements for pass-through entities.[32]

Table 9: Subawardee Risk Assessments Not Appropriately Performed

NSF Award No.	Subaward Issuance Date	Subawardee	Notes
[redacted]	April 2016	[redacted] College	
	April 2016	[redacted] University	
	May 2016	University of [redacted]	
[redacted]	November 2016	University of [redacted]	a
[redacted]	May 2017	Trustees of [redacted] College [redacted]	
[redacted]	June 2017	Research Foundation [redacted] University [redacted]	

[32] According to 2 CFR § 200.331, *Requirements for pass-through entities*, (b), pass-through entities are required to 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 monitoring.

NSF Award No.	Subaward Issuance Date	Subawardee	Notes
[redacted]	July 2017	United States Department of Agriculture (USDA) Forest Services	
[redacted]	September 2017	[redacted] Public Schools [redacted]	b

Source: Auditor summary of identified exceptions.

a) Cary issued subawards to [redacted] College, [redacted] University, [redacted] and the USDA to perform work on NSF Award Nos. [redacted] and [redacted] between April 2016 and July 2017 without documenting that it performed a risk assessment prior to the subawards being issued.

b) Cary issued a subaward to [redacted] to perform work on NSF Award No. [redacted] in September 2017 without documenting that it performed a risk assessment prior to the subaward issuance. Further, when Cary performed a risk assessment of the subaward in 2018, its risk assessment inappropriately concluded that [redacted] did not expend more than $750,000 in federal awards and therefore was not subject to a Single Audit.

Conclusion

Cary did not have a process in place that required it to document subawardee risk assessments performed prior to 2018. Further, it did not have sufficient quality control procedures in place to ensure it accurately completed risk assessments for subawards issued prior to 2018, when it began documenting its risk assessments.

Because these instances of non-compliance did not directly result in Cary charging unallowable costs to NSF awards, we are not questioning any costs related to these exceptions. However, we are noting compliance findings for the eight instances in which Cary did not comply with all applicable federal requirements for pass-through entities, as illustrated in Table 10.

Table 10: Finding 4 Summary: Non-Compliance with Federal Requirements for Pass-Through Entities

NSF Award No.	Description	Fiscal Year(s)
[redacted]	April 2016 [redacted] College Subaward Risk Assessment Not Performed	2016
	April 2016 [redacted] University Subaward Risk Assessment Not Performed	2016
	May 2016 [redacted] Subaward Risk Assessment Not Performed	2016
	November 2016 [redacted] Subaward Risk Assessment Not Performed	2017
	May 2017 [redacted] Subaward Risk Assessment Not Performed	2017
	June 2017 [redacted] Subaward Risk Assessment Not Performed	2017
	July 2017 USDA Forest Services Subaward Risk Assessment Not Performed	2018
	September 2017 [redacted] Subaward Risk Assessment Not Performed	2018

Source: Auditor summary of identified exceptions.

Recommendations

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

4.1. Direct Cary to ensure it has appropriately and accurately performed risk assessments for all active subawards issued prior to the implementation of its 2018 subaward policy in accordance with federal regulations.

Cary Institute of Ecosystem Studies Response: Cary did not state whether it agreed or disagreed with this finding but did note that it did not maintain formal documentation to validate the risk assessment completion prior to 2018. Cary stated that it followed best practices for the performance of subawardee risk assessments and has continued to strengthen the risk assessment process with more formal documented reviews following an NSF site visit in 2018.

Auditors' Additional Comments: Our position regarding this finding has not changed. Although Cary noted that it has improved its documentation of risk assessments since 2018, because it did not maintain documentation to support that risk assessments were appropriately performed prior to the issuance of these subawards, our position regarding this finding has not changed.

FINDING 5: INDIRECT COST RATES APPLIED USING NON-NICRA APPROVED RATES

We identified six instances in which Cary charged three NSF awards for indirect costs using an indirect cost rate that was not approved per Cary's NICRAs.[33]

Table 11: Indirect Cost Rates Applied Using Non-NICRA Approved Rates

NSF Award Number	Fiscal Year(s)	Rate (%) at which Indirect Costs were Applied	Rate (%) at which Indirect Costs Should Have Been Applied	Notes
[redacted]	2016	51.43	57.70	a
	2017	45.10	57.00	b
	2017	37.35	57.00	c
	2018	54.03	57.70	d
	2020	45.10	51.38	e
	2021	26.10	47.19	f

Source: Auditor summary of identified exceptions.

a) In FY 2016, Cary applied a non-NICRA approved indirect cost rate of 51.43 percent to **Modified Total Direct Costs (MTDCs)** charged to NSF Award No. [redacted] rather than the 57.70 percent NICRA rate in effect at the time of the transaction.

[33] Cary's NICRAs state that the rates approved in the agreement are for use on grants, contracts, and other agreements with the federal government.

b) In FY 2017, Cary applied a non-NICRA approved indirect cost rate of 45.10 percent to MTDCs charged to NSF Award No. [redacted] rather than the 57.00 percent NICRA rate in effect at the time of the transaction.

c) In FY 2017, Cary applied a non-NICRA approved indirect cost rate of 37.35 percent to MTDCs charged to NSF Award No. [redacted] rather than the 57.00 percent NICRA rate in effect at the time of the transaction.

d) In FY 2018, Cary applied a non-NICRA approved indirect cost rate of 54.03 percent to MTDCs charged to NSF Award No. [redacted] rather than the 57.70 percent NICRA rate in effect at the time of the transaction.

e) In FY 2020, Cary applied a non-NICRA approved indirect cost rate of 45.10 percent to MTDCs charged to NSF Award No. [redacted] rather than the 51.38 percent NICRA rate in effect at the time of the transaction.

f) In FY 2021, Cary applied a non-NICRA approved indirect cost rate of 26.10 percent to modified total direct costs charged to NSF Award No. [redacted] rather than the 47.19 percent NICRA rate in effect at the time of the transaction.

Conclusion

Cary did not have sufficient policies and procedures or internal controls in place to ensure indirect cost rates were charged to NSF awards at approved NICRA rates.

Because these instances of non-compliance did not directly result in Cary charging unallowable costs to NSF awards, we are not questioning any costs related to these exceptions; however, we are noting compliance findings for each instance in which Cary applied indirect cost rates that were not consistent with its NICRAs, as illustrated in Table 12.

Table 12: Finding 5 Summary: Indirect Cost Rates Applied Using a Non-NICRA Approved Rate

NSF Award Number	Fiscal Year(s)	Rate (%) at which Indirect Costs were Applied	Rate (%) at which Indirect Costs Should Have Been Applied
[redacted]	2016	51.43	57.70
	2017	45.10	57.00
	2017	37.35	57.00
	2018	54.03	57.70
	2020	45.10	51.38
	2021	26.10	47.19

Source: Auditor summary of identified exceptions.

Recommendations

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

5.1 Direct Cary to strengthen its monitoring procedures and internal control processes for applying indirect cost rates to federal awards. Updated procedures should ensure that Cary is charging indirect costs by applying the approved rates included within its Negotiated Indirect Cost Rate Agreements.

Cary Institute of Ecosystem Studies Response: Cary disagreed with this finding, stating that it may charge an indirect cost rate that is lower than its most recent NICRA rate per discussions with NSF representatives.

Auditors' Additional Comments: Our position regarding this finding has not changed. Although Cary applied indirect costs rates that were lower than the appropriate NICRA rates, because it did not have controls in place to document its decision to use the lower non-NICRA rates, our position regarding this finding has not changed.

Finding 6: Indirect Cost Rate Not Applied to the Appropriate MTDC Base

Cary did not apply its indirect cost rate to an expense charged to NSF Award No. [redacted] that should have been included within its MTDC base per federal regulations,[34] NSF PAPPG,[35] and Cary's NICRA.[36]

Table 13: Indirect Cost Rate Not Applied to the Appropriate MTDC Base

NSF Award Number	Fiscal Year	Indirect Costs Not Applied to	Notes
[redacted]	2016	The First $25,000 in Subaward Expenses	a

Source: Auditor summary of identified exception.

a) In June 2016, Cary did not apply its indirect cost rate to the first $25,000 of subaward costs invoiced by [redacted] University for work it performed on NSF Award No. [redacted]

[34] According to 2 CFR § 230, Appendix A, D.3.f, *Distribution basis*, indirect costs shall be distributed to applicable sponsored awards and other benefiting activities within each major function on the basis of MTDC. MTDC consists of all salaries and wages, fringe benefits, materials and **supplies**, services, travel, and subgrants and subcontracts up to the first $25,000 of each subgrant or subcontract (regardless of the period covered by the subgrant or subcontract). **Equipment**, **capital expenditures**, charges for patient care, rental costs and the portion in excess of $25,000 shall be excluded from MTDC. Additionally, according to 2 CFR § 200.68, *Modified Total Direct Costs (MTDC)*, MTDC means all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel, and subawards and subcontracts up to the first $25,000 of each subaward or subcontract. 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 in excess of $25,000.

[35] NSF PAPPG 16-1, Part I, Chapter II, Section C.2.g.(viii), *Indirect costs*, state that the amount for indirect costs should be calculated by applying the current negotiated indirect cost rate(s) to the approved base(s).

[36] Cary's NICRA dated April 10, 2014, states that its MTDC is based on total direct costs excluding equipment, capital expenditures, participant support, rental costs, tuition remission, scholarship and fellowships, and subaward/subcontract costs exceeding $25,000 per subcontract/subaward.

Conclusion

Cary does not have sufficient policies and procedures or internal controls in place to ensure that it applies its indirect cost rates to all expenses that should be included within its MTDC base.

Because this instance of non-compliance did not directly result in Cary charging unallowable costs to an NSF award, we are not questioning any costs related to this exception. However, we are noting a compliance finding for the instance in which it did not apply its indirect cost rate to subaward costs that should have been included in its MTDC base.

Table 14: Finding 6 Summary: Indirect Cost Rate Not Applied to the Appropriate MTDC Base

NSF Award Number	Indirect Costs Not Applied to	Fiscal Year
[redacted]	The First $25,000 in Subaward Expenses	2016

Source: Auditor summary of identified exception.

Recommendations

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

6.1 Direct Cary to strengthen its monitoring procedures to ensure it applies its indirect cost rates to all direct costs that should be included within its modified total direct cost base per its Negotiated Indirect Cost Rate Agreement.

Cary Institute of Ecosystem Studies Response: Cary did not state whether it agreed or disagreed with this finding but noted that it made the decision not to charge unbudgeted indirect costs to the subaward, as indirect costs had already been charged to the NSF award on the first $25,000 of the transferred subaward issued by [redacted] University. However, Cary did note that it disagreed with the recommendation for this finding, stating that it has sufficient monitoring procedures in place to ensure its indirect cost rates are appropriately applied to MTDC.

Auditors' Additional Comments: Our position regarding this finding has not changed. Although Cary noted that it decided not to charge indirect costs to this subaward, because it did not provide any documentation to support its decision to do so, our position regarding this finding has not changed.

FINDING 7: FRINGE BENEFITS NOT CHARGED CONSISTENT WITH NICRA

Cary did not charge fringe benefits as direct costs, as outlined in the organization's NICRAs.[37] Specifically, rather than identifying the fringe expenses associated with the direct **salaries and wages** charged to six NSF awards, Cary applied an internally developed fringe benefit rate to each of the direct salary expenses tested during the audit, as illustrated in Table 15.

Table 15: Fringe Benefit Applied Using a Non-Approved Fringe Benefit Rate

NSF Award No.	Transaction Date	Rate Applied (%)[38]	Appropriate Fringe
[redacted]	June 2019	34.50	Unknown
[redacted]	December 2015	11.00	Unknown
[redacted]	February 2016	32.50	Unknown
[redacted]	February 2017	33.50	Unknown
[redacted]	December 2018	11.00	Unknown
[redacted]	December 2018	34.50	Unknown
[redacted]	December 2018	11.00	Unknown
[redacted]	December 2018	11.00	Unknown
[redacted]	August 2020	36.50	Unknown
[redacted]	June 2020	35.50	Unknown
[redacted]	August 2020	36.50	Unknown
[redacted]	July 2021	37.50	Unknown

Source: Auditor summary of identified exceptions.

Conclusion

Cary stated that it established the fringe benefit rates it applied to each transaction based on the actual direct costs it incurred for fringe benefits during the prior year. However, because the fringe benefit rates it developed and applied were not reviewed or approved by the National Science Foundation, its **cognizant agency for indirect costs**, Cary should not have applied these rates to federal awards.

Because Cary did not track fringe benefit expenses in a manner that allows us to determine the total fringe benefit costs allowable on each NSF award, we are not questioning any costs related to these exceptions. However, because Cary's current process could have caused it to charge unallowable costs to NSF awards, we are noting compliance exceptions related to the six NSF awards for which fringe benefits were not appropriately charged, as illustrated in Table 16.

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37 According to Cary's NICRAs dated May 14, 2012, April 10, 2014, April 8, 2019, and July 1, 2020, fringe benefits associated with direct salaries and wages are treated as direct costs and included in the indirect cost rate applicable base. Although Cary's October 31, 2016, NICRA does not specifically note that fringe benefits are treated as direct costs, it does not include fringe benefit rates.

38 Cary developed fringe benefit rates for both benefitted staff (32.5 percent, 33.5 percent, 34.5 percent, 35.5 percent, and 37.5 percent) and non-benefitted staff (11 percent) that it applied during the audit period.

Table 16: Finding 7 Summary: Fringe Benefits Not Charged Consistent with NICRA

NSF Award No.	Compliance Exception Identified	Fiscal Year(s)
[redacted]	Fringe Benefits Not Appropriately Charged	2019
[redacted]	Fringe Benefits Not Appropriately Charged	2016
[redacted]	Fringe Benefits Not Appropriately Charged	2017 – 2019
[redacted]	Fringe Benefits Not Appropriately Charged	2021
[redacted]	Fringe Benefits Not Appropriately Charged	2020 – 2021
[redacted]	Fringe Benefits Not Appropriately Charged	2022

Source: Auditor summary of identified exceptions.

Recommendations

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

7.1 Direct Cary to meet with the National Science Foundation Cost Analysis and Pre-Award Branch, its cognizant federal agency, to establish a negotiated rate for fringe benefits, or establish policies and procedures to charge fringe benefits as direct costs as outlined within its Negotiated Indirect Cost Rate Agreement.

7.2 Direct Cary to perform a cost analysis identifying the total fringe benefit costs charged to each NSF award for the entire period of performance as compared to the total fringe benefits earned by staff throughout the same period. Cary should then provide each award analysis to NSF's Resolution and Advanced Monitoring Branch for review to determine if fringe benefits were overcharged as a result of using the non-approved fringe benefit rate.

Cary Institute of Ecosystem Studies Response: Cary did not state whether it agreed or disagreed with this finding but noted that it has been using its current process for applying internally established fringe benefit rates consistently across all accounts for many years. Further, Cary stated that its process has not been questioned during Cary's NSF site visits, nor during negotiations of Cary's federal indirect cost rates with NSF.

Auditors' Additional Comments: Our position regarding this finding has not changed. Although Cary noted that it has been using its current process for applying fringe benefit rates consistently for many years, because it did not charge fringe benefits based on direct costs, consistent with its NICRAs, our position regarding this finding has not changed.

COTTON & COMPANY ASSURANCE AND ADVISORY, LLC

[redacted]

Megan Mesko, CPA, CFE
Partner
October 18, 2022

APPENDIX A: CARY'S RESPONSE

Cary Institute of Ecosystem Studies

Cary Institute of Ecosystem Studies
NSF OIG Audit Report Responses
September 28, 2022

Finding 1: Inadequately Supported Expenses

Leave Payout Expenses
The employee for which this terminal payment selection was made was a long-term Cary Institute employee. [redacted] worked on a number of different grant accounts related to research conducted in the [redacted] which was funded by a number of continuous NSF awards.

Response:
Cary Institute agrees to reimburse NSF for this expense. Following an NSF site visit in 2018, we updated our procedures in regards to leave payouts so we believe this recommendation has already been adequately addressed. This includes enhanced practices for monitoring vacation balances for employees paid from grant accounts, which includes making supervisors aware of their staff members' vacation balances and continuously reviewing accounts from which employees are paid. Further, the Grants Manager reviews and signs off on payroll change forms when sponsored project accounts are involved, including change forms for account distribution changes as well as terminal payment account distributions, which is the support documentation for how terminal payment distributions are allocated among accounts.

Publication Expenses
NSF Program Officers encourage Cary Institute scientists to acknowledge any NSF award that has contributed to the research that is being used in a publication. Much of Cary Institute's funded research is for projects that include long-term data collection and monitoring. Our scientists feel compelled to acknowledge prior and existing awards that contributed to the collection of these long-term data. However, it is unclear how we can appropriately allocate funds to the acknowledged awards, especially if those awards 1) are closed, 2) are not a Cary Institute award, or 3) are awards with limited funds or no funds available to be used towards publication fees.

Response:
Cary Institute disagrees with the disallowance of this publication expense. NSF has not provided funded scientists and their institutions with adequate guidance on how publication charges should be allocated among NSF awards that are acknowledged in publications. If publications should only acknowledge awards that have been charged for the cost of that publication, NSF's proposal and award policies and procedures guidance and/or the terms and conditions associated with awards should include that information.

Cary Institute is greatly appreciative of the funding we receive from NSF, and we want to ensure that, wherever possible, we are inclusive in acknowledging the grants that have supported research discussed in a given publication, recognizing that a grant can support the research, but not be part of the direct funding of publication costs. Hence, we would greatly appreciate the opportunity to discuss this finding with NSF, and update and strengthen our publication acknowledgement policies and procedures according to the guidance we receive. Specifically, we seek guidance on how publications must acknowledge NSF awards, how we acknowledge the funding of research and/or the funding of publications, and how these acknowledgements relate to how publication expenses are allocated to those awards. We will then educate our scientific staff such that they properly cite and charge NSF awards with publications expenses, as well as how they budget for publication expenses in proposals.

Service Center Expense
The Cary Institute analytical lab has been set up to provide assistance to Cary Institute scientists and in some cases, their collaborators, to help process and analyze their samples. The cost structure has been set up to help recover some of the costs of the supplies needed to operate the lab. We consider our lab to be an institutional support center that is small in scale and is a resource that is available to any Cary Institute scientist or their collaborators. The lab consists of a Laboratory Manager, plus up to 3 technicians who process a limited volume of samples.

Cary Institute did not consider its internal laboratory a service center prior to receiving this audit finding and as such, did not consider itself bound by the requirement to have documentation to show that it biennially adjusts its rates. Cary Institute's Laboratory Manager does periodically review the rates charged by the analytical laboratory and the spreadsheet used for those rates becomes the purchase requisition/invoice for the lab billing. However, the rates have remained consistent and our scientists may submit a lab billing invoice with an older version of the invoice rate spreadsheet referenced.

Response:
Cary Institute agrees to reimburse NSF for this expenses. We will work with our Laboratory Manager to implement a more formal process to biannually review the rates used by the analytical laboratory and ensure that scientists are provided with the most updated invoice rate spreadsheet to use when conducting their lab billing.

Finding 2: Unallowable Expenses

Publications Costs
Cary Institute confirms that the publication expense selected [redacted] acknowledged funding from NSF, but did not identify the specific NSF award number as described in NSF PAPPG 18-1. This award's co-Principal Investigator and co-author of this publication indicated that [redacted] University [redacted] did not permit the authors to use award numbers in the Acknowledgments section. [redacted] also indicated that researchers often find that the rules of various publishers are a problem for full numerical award number acknowledgment.

We note that the relevant section – Part II, Chapter XI., Section E. (Publication/Distribution of Grant Materials) – of the NSF PAPPG published after PAPPG NSF 18-1 removed the specific acknowledgement of support language found in NSF PAPPG 18-1, which was as follows: "This material is based upon work supported by the National Science Foundation under Grant No. (NSF grant number)."

We also note that this change was not explained as a significant change and clarification, or as a clarification or other change, at the beginning of NSF PAPPG 19-1. This suggests to us that the specific language found in NSF PAPPG 18-1 was a suggestion rather than a requirement.

Response:
Cary Institute disagrees with this finding. We would appreciate the opportunity to discuss this finding with NSF, as our scientist was not permitted to use a specific award number in his publication. Regardless of the outcome, we plan to strengthen and clarify our policies based on the guidance we receive.

Airfare on a Non-U.S. Flag Carrier
Cary Institute confirms that the selected expense included a flight on a non-U.S. flag carrier. However, we disagree with the general conclusion that Cary Institute does not have sufficient procedures or internal controls in place to ensure that it only charges allowable costs to NSF awards. The scientific staff member at Cary Institute who helped the meeting participants arrange their travel sent an email to the participant prior to the meeting to provide information about making travel arrangements, including booking a flight using a U.S. carrier whenever possible. The participant was able to use a U.S. carrier on [redacted] flight to [redacted] but was unable to use one on [redacted] return flight to [redacted] Further, in some cases, Cary Institute staff use a local travel agent to help meeting participants book their travel and our agent is well-versed in federal travel requirements.

Response:
Cary Institute agrees to reimburse NSF for this expense as it appears that the justification we provided for use of a non-U.S. flag carrier was insufficient. We will update our travel policy related to the booking and approval of foreign travel expenses to ensure that deviations are well-documented and that air travel that does not comply with the Fly America Act will not be charged to a federal grant.

Finding 3: Indirect Cost Rates Not Appropriately Adjusted

Finding 3 relates to how Cary Institute applies its indirect cost rate to NSF awards. Cary Institute has been using the same indirect cost rate through the life of the award, rather than updating the indirect cost rate when its negotiated rate changes. Cary Institute notified the NSF Policy Office and received confirmation that this was acceptable.

Subsequent to learning of this finding, we sought guidance from experts within NSF's Division of Institution and Award Support (DIAS) to clarify how Cary Institute should be applying its indirect cost rate in preparation for the start of our new fiscal year, in which we have recently negotiated an updated indirect cost rate effective July 1, 2022. We had a productive virtual meeting with Rochelle Ray, Branch Chief, and Charlotte Grant-Cobb, Lead Analyst, Audit Resolution, from the Resolution and Advanced Monitoring (RAM) Branch in DIAS; and Shaun Minick, Branch Chief, and Meghan Benson, Lead Analyst for Indirect Cost Rate Negotiation, from the Cost Analysis and Pre-Award (CAP) Branch.

The guidance we received indicated that, starting with our current indirect cost rate effective July 1, 2022, we must review the indirect cost rates being used on our existing NSF awards to determine if an adjustment should be made. Specifically, if the new indirect cost rate has decreased from the rate being used on a particular award, Cary Institute must apply the lower rate. If the rate has increased, Cary Institute may elect to keep an existing rate that is lower, or use the new, higher negotiated rate. Cary Institute intends to update its Financial Management Procedures and any other related policies, as needed, to ensure indirect cost rates on existing NSF awards are reviewed and adjusted as appropriate when new indirect cost rates are negotiated.

Response:
We disagree with the recommendation regarding the repayment of the questioned indirect costs. Cary Institute relied on following the guidance provided by NSF representatives previously that was inconsistent with the new guidance we have recently received. As described above, Cary Institute will update its policies and procedures to ensure correct application of its federally negotiated indirect cost rates.

Finding 4: Non-Compliance with Federal Requirements for Pass-through Entities

This finding refers to a lack of documentation that Cary Institute performed subawardee risk assessments prior to 2018. Cary Institute believes that it did follow the Uniform Guidance (2 CFR 200.332, Requirements for pass-through entities) by performing risk assessments prior to the issuance of subawards prior to 2018 to determine any necessary monitoring steps. This included a review of the proposed subaward entity's submitted subrecipient commitment form (requested by and provided to Cary Institute prior to proposal submission), a review of the subaward entity's information contained in SAM.gov and FAPIIS, and a review of the entity's most recent audit report. We do confirm that these reviews did not include formal documentation to confirm completion of our proposed subaward entity risk assessment process prior to 2018. Our subaward policy was updated in 2018 following a virtual site visit conducted by NSF, in which NSF recommended that we document our pre-award risk assessment process through the use of a form that we developed and currently use during risk assessments completed prior to proposal submission that includes subawards, as well as annually for existing subaward entities.

Response:
Cary Institute did follow the Uniform Guidance's best practice on its performance of subawardee risk assessments and has continued to strengthen the risk assessment process with more formal documented reviews.

Finding 5: Indirect Costs Applied to Non-NICRA Approved Rates

Finding 5 is related to Finding 3, except this finding did not result in any questioned costs because the indirect cost rates applied to these selected expenses were lower than the approved rates at the time the expenses were incurred.

According to our recent discussion with staff from NSF's Division of Institution and Award Support (DIAS) as described in our response to Finding 3, Cary Institute may charge an indirect cost rate that is lower than the most recent federally negotiated indirect cost rate.

Response:
Please see Cary Institute's response to Finding 3.

Finding 6: Indirect Costs Not Applied to the Appropriate MTDC Base

The subaward expense selected in this finding is associated with a highly unusual circumstance in which a large NSF award was transferred to Cary Institute from [redacted] University. The award included the sixth year of funds associated with a six-year, long-term project funded by the NSF long-term ecological research (LTER) program. Project collaborators agreed that a Cary Institute scientist would take over as the lead on the project, and as such, Cary Institute was required to be the prime recipient on the award in order to submit a proposal for the next round of program funding for the site. A total of 12 subawards were included under the transferred award. Since [redacted] University had already charged indirect costs on the first $25,000 of each subaward, Cary Institute determined that it would not charge indirect costs on the transferred subawards as these would be additional expenses that were unanticipated at the time of the award and would reduce the funds needed to conduct the research.

The budget justification for the NSF grant transfer request stated that Cary Institute would not be charging indirect costs on the administration of the subawards. We believe that if this was not appropriate, NSF would have notified us and asked us to adjust our budget accordingly prior to award.

Response:
Cary Institute disagrees with the recommendation to strengthen its monitoring procedures for ensuring it applies indirect costs to all costs that should be included within its MTDC base per its negotiated indirect cost rate agreement. Cary Institute has sufficient monitoring procedures in place already. In this unusual case, Cary Institute, after thorough consideration, made the decision not to charge a second set of unbudgeted indirect costs on the subaward agreements that were included in the transferred award since indirect costs had already been charged on the first $25,000 of the subawards issued by [redacted] and charged to the NSF award.

Finding 7: Fringe Benefits Not Applied Consistent with NICRA

Finding 7 relates to how Cary Institute applies fringe benefits to NSF awards. Rather than direct charging each fringe benefit-related expense, or establishing a federally negotiated fringe benefit rate with NSF, its cognizant agency for indirect costs, Cary Institute internally developed a fringe benefit rate that was applied to direct salary expenses.

Cary Institute of Ecosystem Studies

Response:
For many years, Cary Institute has been using its current process for applying internally established fringe benefit rates consistently across all accounts that include employees' salaries. This process has not been questioned during Cary Institute's NSF site visits or during negotiations of Cary Institute's federal indirect cost rate with NSF. Cary Institute will work with NSF to evaluate its options and develop a plan to address this compliance exception.

[redacted]

September 28, 2022

Holly Talbot
Senior Director of Adminstration/Comptroller

[redacted]

September 28, 2022

Amanda Johnson
Grants Manager/Compliance Officer

APPENDIX B: OBJECTIVES, SCOPE, AND METHODOLOGY

Objectives

The NSF OIG Office of Audits engaged Cotton & Company Assurance and Advisory, LLC (referred to as "we") to conduct an audit of the costs the Cary Institute of Ecosystem Studies (Cary) claimed on 16 NSF awards. The objectives of the audit were to evaluate Cary's award management environment, to determine if costs claimed on 16 NSF awards are allowable, allocable, reasonable, and in compliance with NSF award terms and conditions and applicable federal financial assistance requirements, and to determine whether any extraordinary circumstances existed that would justify further audit work beyond the original sample of 40 to 50 transactions.

Scope

The audit population included approximately $16.6 million in expenses that Cary claimed on the following 16 NSF awards from each award's inception date through September 2, 2021.

NSF Award Numbers					
	[redacted]			[redacted]	
	[redacted]			[redacted]	
	[redacted]			[redacted]	
	[redacted]			[redacted]	
	[redacted]			[redacted]	
	[redacted]			[redacted]	
	[redacted]			[redacted]	
	[redacted]			[redacted]	

Methodology

After obtaining NSF OIG's approval for our audit plan, we performed each of the approved audit steps. Generally, these steps included:

- Assessing the reliability of the GL data that Cary provided by comparing the costs charged to NSF awards per Cary's accounting records to the reported net expenditures reflected in the Award Cash Management $ervice (ACM$) drawdown requests.
    - Our work required us to rely on computer-processed data obtained from Cary and NSF OIG. NSF OIG provided award data that Cary reported through ACM$ during our audit period.
        - We assessed the reliability of the GL data that Cary provided by: (1) comparing the costs charged to NSF awards per Cary's accounting records to the reported net expenditures reflected in the ACM$ drawdown requests that Cary submitted to NSF during the audit period of performance; and (2) reviewing the parameters that Cary used to extract transaction data from its accounting systems. We did

  not identify any discrepancies between the amounts supported by Cary's GL and the amounts that Cary claimed per NSF's ACM$ system; therefore, we found Cary's computer-processed data to be sufficiently reliable for the purposes of the audit. We did not identify any exceptions with the parameters that Cary 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 NSF's databases or the controls over NSF's databases were accurate or reliable; however, the independent auditor's report on NSF's financial statements for FY 2021 found no reportable instances in which NSF's financial management systems did not substantially comply with applicable requirements.

  - Cary provided detailed transaction-level data to support $16,608,485 in costs charged to NSF awards during the period, which was equal to the $16,608,485 Cary claimed in ACM$ for the 16 awards. This data resulted in a total audit universe of $16,608,485 in expenses claimed on 16 NSF awards.

- Obtaining and reviewing all available accounting and administrative policies and procedures, external audit reports, desk review reports, and other relevant information Cary and NSF OIG provided, as well as any other relevant information that was available online.

- Summarizing our understanding of federal, NSF, and Cary-specific policies and procedures surrounding costs budgeted for or charged to NSF awards and 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 Cary's internal controls, within the audit's scope, solely to understand the directives or policies and procedures it has in place to ensure that charges against NSF awards complied with relevant federal regulations, NSF award terms, and Cary policies.

- Providing Cary with a list of 50 transactions that we selected based on the results of our data analytics and requesting that Cary provide documentation to support each transaction.

- Reviewing the supporting documentation Cary provided and requesting additional documentation as necessary to ensure we obtained sufficient, appropriate evidence to assess the allowability of each sampled transaction under relevant federal,[39] NSF,[40] and Cary policies.[41]

- Holding virtual interviews and walkthroughs with Cary in February 2022 to discuss payroll (including effort reporting), fringe benefits, travel, participant support costs, procurement, equipment (including an inventory check), the Graduate Research Fellowship Program (GRFP), other direct costs (e.g., patent, relocation, recruiting, interest, advertising/public relations, entertainment, fundraising, lobbying, selling/marketing, and training costs), grant close-out procedures, subawards, ACM$ processing, indirect costs, and other general policies (e.g., pre- and post-award costs, program income, whistle-blower information, research misconduct, and conflict of interest policies).

- Summarizing the results of our fieldwork and confirming that we did not identify any extraordinary circumstances that justified the need for a second audit phase.[42]

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 Cary personnel to ensure it was aware of each of our findings and did not have additional documentation to support the questioned costs.

We conducted this performance audit in accordance with *Generally Accepted Government Auditing Standards*, 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.

[39] We assessed Cary's compliance with 2 Code of Federal Regulations (CFR) Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, and 2 CFR Part 230, Cost Principles for Non-Profit Organizations (Office of Management and Budget [OMB] Circular A-122), as appropriate.
[40] We assessed Cary's compliance with NSF Proposal and Award Policies and Procedures Guides (PAPPGs) 14-1, 15-1, 16-1, 17-1, 18-1, 19-1, and 20-1 and with NSF award-specific terms and conditions, as appropriate.
[41] We assessed Cary's compliance with its own policies and procedures surrounding costs budgeted for or charged to NSF awards.
[42] Based on the areas of elevated risk of noncompliance identified during the initial phase, we determined that there was no need for an expanded audit phase.

APPENDIX C: SUMMARY OF QUESTIONED COSTS

Appendix C, Table 1: Schedule of Questioned Costs by Finding

Finding	Description	Questioned Costs		Total
		Unsupported	*Unallowable*	
1	Inadequately Supported Expenses	$0	$15,918	$15,918
2	Unallowable Expenses	-	8,709	8,709
3	Indirect Cost Rates Not Appropriately Adjusted	-	8,397	8,397
4	Non-Compliance with Federal Requirements for Pass Through Entities	-	-	-
5	Indirect Cost Rates Applied Using Non-NICRA Approved Rates	-	-	-
6	Indirect Cost Rate Not Applied to the Appropriate MTDC Base	-	-	-
7	Fringe Benefits Not Charged Consistent with NICRA	-	-	-
Total		**$0**	**$33,024**	**$33,024**

Source: Auditor summary of questioned costs by finding.

Appendix C, Table 2: Summary of Questioned Costs by NSF Award Number

NSF Award No.	No. of Transaction Exceptions	Questioned Direct Costs	Questioned Indirect Costs	Questioned Total	Cary Agreed to Reimburse
[redacted]	1	$0	$0	$0	$0
[redacted]	2	4,273	2,466	6,739	
[redacted]	3	-	432	432	-
[redacted]	8	-	-	-	-
[redacted]	13	6,526	5,970	12,496	9,179
[redacted]	5	-	-	-	-
[redacted]	2	859	522	1,381	859
[redacted]	2	-	1,372	1,372	-
[redacted]	5	-	788	788	-
[redacted]	3	-	1,682	1,682	-
[redacted]	1	-	84	84	-
[redacted]	4	5,000	3,050	8,050	-
Grand Total	**49**	**$16,658**	**$16,366**	**$33,024**	**$10,038**

Source: Auditor summary of questioned costs by NSF award number.

Appendix C, Table 3: Summary of Questioned Costs by NSF Award Number and Expense Description

Finding Description	Award No.	Expense Description	Questioned Direct Costs	Questioned Indirect Costs	Total Questioned Costs	Cary Agreed to Reimburse
1) Inadequately Supported Expenses	[redacted]	December 2018 Leave Payout	$5,508	$2,066	$7,574	$7,574
		November 2019 Publication	4,273	2,466	6,739	-
		April 2021 Service Center Expenses	1,018	587	1,605	1,605
2) Unallowable Expenses		January 2019 Publication	5,000	2,850	7,850	-
		January 2019 Airfare	859	-	859	859
3) Indirect Cost Rates Not Appropriately Adjusted	[redacted]	Indirect Costs Inappropriately Charged	-	81	$81	-
	[redacted]	Indirect Costs Inappropriately Charged	-	3,236	3,236	-
			-	0	0	-
	[redacted]	Indirect Costs Inappropriately Charged	-	0	0	-
	[redacted]	Indirect Costs Inappropriately Charged	-	277	277	-
	[redacted]	Indirect Costs Inappropriately Charged	-	1,405	1,405	-
	[redacted]	Indirect Costs Inappropriately Charged	-	1,199	1,199	-
	[redacted]	Indirect Costs Inappropriately Charged	-	173	173	-
	[redacted]	Indirect Costs Inappropriately Charged	-	86	86	-
	[redacted]	Indirect Costs Inappropriately Charged	-	702	702	-
	[redacted]	Indirect Costs Inappropriately Charged	-	522	522	-
	[redacted]	Indirect Costs Inappropriately Charged	-	0	0	-
	[redacted]	Indirect Costs Inappropriately Charged	-	200	200	-

Finding Description	Award No.	Expense Description	Questioned Direct Costs	Questioned Indirect Costs	Total Questioned Costs	Cary Agreed to Reimburse
	[redacted]	Indirect Costs Inappropriately Charged	-	138	138	-
	[redacted]	Indirect Costs Inappropriately Charged	-	294	294	-
	[redacted]	Indirect Costs Inappropriately Charged	-	0	0	-
	[redacted]	Indirect Costs Inappropriately Charged	-	84	84	-
4) Non-Compliance with Federal Requirements for Pass-Through Entities	[redacted]	April 2016 [redacted] College Subaward	-	-	-	-
	[redacted]	April 2016 [redacted] University Subaward	-	-	-	-
	[redacted]	May 2016 [redacted] Subaward	-	-	-	-
	[redacted]	November 2016 [redacted] Subaward	-	-	-	-
	[redacted]	May 2017 [redacted] Subaward	-	-	-	-
	[redacted]	June 2017 [redacted] Subaward	-	-	-	-
	[redacted]	July 2017 USDA Forest Services Subaward	-	-	-	-
	[redacted]	September 2017 [redacted] Subaward	-	-	-	-
5) Indirect Cost Rates Applied Using Non-NICRA Approved Rates	[redacted]	Indirect Costs Applied Using a Non-NICRA Approved Rate	-	-	-	-
	[redacted]	Indirect Costs Applied Using a Non-NICRA Approved Rate	-	-	-	-
	[redacted]	Indirect Costs Applied Using a Non-NICRA Approved Rate	-	-	-	-
	[redacted]	Indirect Costs Applied Using a Non-NICRA Approved Rate	-	-	-	-
	[redacted]	Indirect Costs Applied Using a Non-NICRA Approved Rate	-	-	-	-
	[redacted]	Indirect Costs Applied Using a Non-NICRA Approved Rate	-	-	-	-

Finding Description	Award No.	Expense Description	Questioned Direct Costs	Questioned Indirect Costs	Total Questioned Costs	Cary Agreed to Reimburse
6) Indirect Cost Rate Not Applied to the Appropriate MTDC Base	[redacted]	Indirect Costs Not Applied to The First $25,000 in Subaward Expenses	-	-	-	-
7) Fringe Benefits Not Charged Consistent with NICRA	[redacted]	Fringe Benefits Not Charged Consistent with NICRA	-	-	-	-
	[redacted]	Fringe Benefits Not Charged Consistent with NICRA	-	-	-	-
	[redacted]	Fringe Benefits Not Charged Consistent with NICRA	-	-	-	-
	[redacted]	Fringe Benefits Not Charged Consistent with NICRA	-	-	-	-
	[redacted]	Fringe Benefits Not Charged Consistent with NICRA	-	-	-	-
	[redacted]	Fringe Benefits Not Charged Consistent with NICRA	-	-	-	-
			$16,658	$16,366	$33,024	$10,038

Source: Auditor summary of identified exceptions.

APPENDIX D: SUMMARY OF RECOMMENDATIONS AND CONSIDERATIONS

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

1.1. Resolve the $6,739 in questioned publication expenses and direct Cary to repay or otherwise remove the sustained questioned costs from its NSF awards.

1.2. Direct Cary to provide documentation supporting that it has repaid or otherwise credited the $9,179 of questioned leave payout and service center expenses for which it has agreed to reimburse NSF.

1.3. Direct Cary to introduce additional controls to help ensure that it appropriately creates and maintains all documentation necessary to support the allowability of leave payout, publication, and service center expenses charged to NSF awards. Updated procedures could include:

- Implementing a formal methodology outlining how to determine what percentage of leave payout expenses are allowable/allocable on NSF awards. This methodology should consider the employee's level of effort on NSF awards throughout the period leave was earned.

- Implementing a standard documentation and retention process to support the allocation of publication costs that benefit multiple federal awards.

- Performing—and documenting the performance of—bi-annual reviews of rates established by its internal service centers to ensure rates produced by each service center comply with federal requirements.

2.1. Resolve the $7,850 in questioned publication expenses and direct Cary to repay or otherwise remove the sustained questioned costs from its NSF awards.

2.2. Direct Cary to provide documentation supporting that it has repaid or otherwise credited the $859 of questioned airfare costs for which it has agreed to reimburse NSF.

2.3. Direct Cary to establish clear guidance regarding the allowability of publication expenses on sponsored projects, including the requirement regarding how to acknowledge NSF funding sources.

2.4. Direct Cary to strengthen its processes and procedures surrounding the booking and approval of foreign travel expenses. Updated procedures could include implementing additional reviews for all foreign airfare purchases that require the reviewer to verify purchased airfare is compliant with the Fly America Act before charging the expense to an NSF award.

3.1. Resolve the $8,397 in questioned indirect costs for which Cary has not agreed to reimburse NSF and direct it to repay or otherwise remove the sustained questioned costs from its NSF awards.

3.2. Direct Cary to identify and remove all indirect costs that were overcharged to the sampled NSF awards because it charged indirect costs by applying rates above those included in the Negotiated Indirect Cost Rate Agreements applicable when the direct expenses were incurred on the sampled NSF awards.

3.3. Direct Cary to update its *Financial Management Procedures* to require that indirect costs be charged to NSF awards using the predetermined rates in effect when it incurs expenses rather than using the predetermined rates in effect at the time NSF grants were awarded, consistent with its Negotiated Indirect Cost Rate Agreement.

4.1. Direct Cary to ensure that it has appropriately and accurately performed risk assessments for all active subawards issued prior to the implementation of its 2018 subaward policy in accordance with federal regulations.

5.1 Direct Cary to strengthen its monitoring procedures and internal control processes for applying indirect cost rates to federal awards. Updated procedures should ensure that Cary is charging indirect costs by applying the approved rates included within its Negotiated Indirect Cost Rate Agreements.

6.1 Direct Cary to strengthen its monitoring procedures to ensure it applies its indirect cost rates to all direct costs that should be included within its modified total direct cost base per its Negotiated Indirect Cost Rate Agreement.

7.1 Direct Cary to meet with the National Science Foundation Cost Analysis and Pre-Award Branch, its cognizant federal agency, to establish a negotiated rate for fringe benefits, or establish policies and procedures to charge fringe benefits as direct costs as outlined within its Negotiated Indirect Cost Rate Agreement.

7.2 Direct Cary to perform a cost analysis identifying the total fringe benefit costs charged to each NSF award for the entire period of performance as compared to the total fringe benefits earned by staff throughout the same period. Cary should then provide each award analysis to NSF's Resolution and Advanced Monitoring Branch for review to determine if fringe benefit were overcharged as a result of using the non-approved fringe benefit rate.

APPENDIX E: GLOSSARY

Allocable Cost. A cost is allocable to a particular federal award or other cost objective if the goods or services involved are chargeable or assignable to that federal award or cost objective in accordance with relative benefits received. This standard is met if the cost:

(a) Is incurred specifically for the federal award.

(b) Benefits both the federal award and other work of the non-federal entity and can be distributed in proportions that may be approximated using reasonable methods.

(c) Is necessary to the overall operation of the non-federal entity and is assignable in part to the federal award in accordance with the principles in this subpart. (2 CFR § 200.405).

Return to the term's initial use.

Allocation refers to the process of assigning a cost, or a group of costs, to one or more cost objective(s), in reasonable proportion to the benefit provided or other equitable relationship. The process may entail assigning a cost(s) directly to a final cost objective or through one or more intermediate cost objectives. (2 CFR § 200.4).

Return to the term's initial use.

Allowable Cost. Except where otherwise authorized by statute, costs must meet the following general criteria in order to be allowable under federal awards:

(a) Be necessary and reasonable for the performance of the federal award and be allocable thereto under these principles.

(b) Conform to any limitations or exclusions set forth in these principles or in the federal award as to types or amount of cost items.

(c) Be consistent with policies and procedures that apply uniformly to both federally-financed and other activities of the non-federal entity. (2 CFR § 200.403).

Return to the term's initial use.

Capital expenditures refers to expenditures 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. (2 CFR § 200.13).

Return to the term's initial use.

Cognizant agency for indirect costs refers to the federal agency responsible for reviewing, negotiating, and approving cost allocation plans or indirect cost proposals developed on behalf of all Federal agencies. (2 CFR § 200.19).

Return to the term's initial use.

Equipment means tangible personal property—including information technology (IT) systems—having a useful life of more than one year and a per-unit acquisition cost which

equals or exceeds the lesser of the capitalization level established by the non-federal entity for financial statement purposes, or $5,000. (2 CFR § 200.33).
Return to the term's initial use.

Fly America Act states that all air travel and cargo transportation services funded by the federal government are required to use a "U.S. flag" air carrier service. This requirement applies to:

- Federal government employees and their dependents;
- Consultants, contractors, and grantees; and
- Other travelers whose travel is paid for by the federal government. (GSA Website).

Return to the term's initial use.

Fringe Benefits refers to allowances and services provided by employers to their employees as compensation in addition to regular salaries and wages. Fringe benefits include, but are not limited to, the costs of leave (vacation, family-related, sick, or military), employee insurance, pensions, and unemployment benefit plans. (2 CFR § 200.431).
Return to the term's initial use.

Indirect (F&A) Costs refers to costs incurred for a common or joint purpose benefitting more than one cost objective, and not readily assignable to the cost objectives specifically benefitted, without effort disproportionate to the results achieved. (2 CFR § 230, Appendix A, Section C.), (2 CFR § 200.56) and (2 CFR Revision § 200.1).
Return to the term's initial use.

Modified Total Direct Cost (MTDC) refers to all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel, and up to the first $25,000 of each subaward (regardless of the period of performance of the subawards under the award). 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 in excess of $25,000. Other items may only be excluded when necessary to avoid a serious inequity in the distribution of indirect costs, and with the approval of the cognizant agency for indirect costs. (2 CFR § 200.68) and (2 CFR Revision § 200.1).
Return to the term's initial use.

Negotiated Indirect Cost Rate refers to the indirect cost rates charged to federal awards through the development and application of a negotiated indirect cost rate agreement (NICRA). In order to recover indirect costs related to federal awards, most organizations must negotiate an indirect cost rate with the federal agency that provides the preponderance of funding. (NSF Office of Budget, Finance, and Award Management).
Return to the term's initial use.

Participant Support Costs refers to the 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. (2 CFR § 200.75).
Return to the term's initial use.

NSF Proposal & Award Policies & Procedures Guide (PAPPG) refers to the NSF publication which comprises documents relating to NSF's proposal and award process for the assistance programs of NSF. The PAPPG, in conjunction with the applicable standard award conditions incorporated by reference in award, serve as the NSF's implementation of 2 CFR § 200, *Uniform Administrative Requirements*, *Cost Principles*, and *Audit Requirements for Federal Awards*. (NSF PAPPG 19-1).
Return to the term's initial use.

Publication Costs refer to the direct costs incurred for publishing electronic and print media, including the distribution, promotion and handling of that media. (2 CFR § 200.461).
Return to the term's initial use.

Reasonable Cost means a cost that, in its nature and amount, does not exceed that which would have been incurred by a prudent person under the circumstances prevailing at the time the decision to incur the cost was made. (2 CFR § 200.404).
Return to the term's initial use.

Salaries and Wages mean the compensation for personal services including all remuneration, paid currently or accrued, for services of employees rendered during the period of performance under the Federal award, including but not necessarily limited to wages and salaries. (2 CFR § 200.430).
Return to the term's initial use.

Specialized Service Facilities refer to highly complex or specialized facilities operated by the non-Federal entity, such as computing facilities, wind tunnels, and reactors. (2 CFR § 200.468).
Return to the term's initial use.

Subawards mean awards provided by a pass-through entity to a subrecipient for the subrecipient to carry out part of a federal award received by the pass-through entity. It does not include payments to a contractor or payments to an individual that is a beneficiary of a federal program. A subaward may be provided through any form of legal agreement, including an agreement that the pass-through entity considers a contract. (2 CFR § 200.92).
Return to the term's initial use.

Supplies refer to all tangible personal property other than those described in 2 CFR § 200.33, *Equipment*. A computing device is a supply if the acquisition cost is less than the lesser of the capitalization level established by the non-federal entity for financial statement purposes or $5,000, regardless of the length of its useful life. (2 CFR § 200.94).
Return to the term's initial use.

Travel Costs refer to expenses incurred for transportation, lodging, subsistence, and related items incurred by employees who are in travel status on official business of the non-federal entity. (2 CFR § 200.474).

Return to the term's initial use.

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