

Performance Audit of Incurred Costs – University of Southern California

REPORT PREPARED BY KEARNEY & COMPANY, P.C.

NATIONAL SCIENCE FOUNDATION
OFFICE OF INSPECTOR GENERAL

September 29, 2017
OIG 17-1-009





AT A GLANCE

Performance Audit of Incurred Costs – University of Southern California

Report No. OIG 17-1-009

September 29, 2017

AUDIT OBJECTIVE

The National Science Foundation Office of Inspector General engaged Kearney & Company, P.C. (Kearney) to conduct a performance audit of incurred costs at the University of Southern California (USC) for the period October 1, 2011, to September 30, 2014. The audit encompassed more than \$324 million comprising all costs claimed to NSF. The objective of the audit was to determine if costs claimed by USC during this period were allocable, allowable, reasonable, and in conformity with NSF award terms and conditions and applicable Federal financial assistance requirements. Kearney is responsible for the attached auditor's report and the conclusions expressed in this report. NSF OIG does not express any opinion on the conclusions presented in Kearney's audit report.

AUDIT RESULTS

Costs USC charged to its NSF-sponsored agreements did not always comply with Federal and NSF award requirements. The auditors questioned \$639,479 of costs claimed by USC during the audit period. Specifically, the auditors found \$304,290 of unreasonable expenses near award expiration; \$217,387 of misapplied indirect costs (IDC) on subawards; \$55,182 of unsupported or incorrect charges to participant support; \$40,199 of unreasonable, unallowable, or unsupported travel costs; \$9,364 of unreasonable or unallocable general expense charges; \$8,640 of untimely posting of travel charges; and \$4,417 of unreasonable payroll charges.

RECOMMENDATIONS

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

AWARDEE RESPONSE

USC disagreed with the majority of the findings in the report. USC contends that some of the costs within the findings are allowable and disagreed with the auditors' conclusions. USC did not dispute the auditors' statements that there were weaknesses in management and administrative controls. After taking USC's comments into consideration, the auditors continue to question the costs and left the findings unchanged. USC's response is attached in its entirety to the report as Appendix B.

FOR FURTHER INFORMATION, CONTACT US AT (703) 292-7100 OR OIG@NSF.GOV.



MEMORANDUM

TO: Dale Bell
Director
Division of Institution and Award Support

Jamie French
Director
Division of Grants and Agreements

FROM: Mark Bell 
Assistant Inspector General
Office of Audits

DATE: September 29, 2017

SUBJECT: Audit Report No. 17-1-009, University of Southern California

This memo transmits the Kearney & Company (Kearney) report for the audit of costs totaling approximately \$324 million charged by the University of Southern California (USC) to its sponsored agreements with the National Science Foundation during the period October 1, 2011, to September 30, 2014. The objective of the audit was to determine if costs claimed by USC during this period were allocable, allowable, reasonable, and in conformity with NSF award terms and conditions and applicable Federal financial assistance requirements.

In accordance with Office of Management and Budget Circular A-50, *Audit Followup*, please provide a written corrective action plan to address the report recommendations. In addressing the report's recommendations, this corrective action plan should detail specific actions and associated milestone dates. Please provide the action plan within 60 calendar days of the date of this report.

OIG Oversight of Audit

To fulfill our monitoring responsibilities, the Office of Inspector General:

- reviewed Kearney'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 Kearney, as necessary, to discuss audit progress, findings, and recommendations;
- reviewed the audit report prepared by Kearney to ensure compliance with generally accepted government auditing standards; and
- coordinated issuance of the audit report.



NATIONAL SCIENCE FOUNDATION OFFICE OF INSPECTOR GENERAL

We thank your staff for the assistance that was extended to the auditors during this audit. If you have any questions regarding this report, please contact Billy McCain at 703-292-7100.

Attachment

cc:

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University of Southern California

**Audit of Claimed Costs
For the Period October 1, 2011 to September 30, 2014**

**National Science Foundation
Office of Inspector General**

INDEPENDENT ACCOUNTANT’S PERFORMANCE AUDIT REPORT

To the Inspector General of the National Science Foundation:

Kearney & Company, P.C. (defined as “Kearney,” “we,” and “our” in this report) has conducted an audit of costs claimed by the University of Southern California (referred to as “USC” or “University” in this report) on National Science Foundation (NSF) awards made to the University from the period of October 1, 2011 through September 30, 2014. This performance audit was conducted under Blanket Purchase Agreement (BPA) #DI4PA00037, Order #D14PB00558.

The objective of the performance audit is to determine if costs claimed in the sample provided to us by the NSF Office of Inspector General (OIG) are allowable, allocable, reasonable, and in conformity with NSF award terms and conditions, as well as applicable Federal financial assistance requirements. Kearney conducted the performance audit by testing costs claimed by the University and reporting on only the samples provided to us by the NSF OIG.

Kearney performed testing over NSF OIG’s compiled judgmental sample, which consisted of a listing of an initial 250 transactions, based on NSF OIG’s criteria and assessment of University costs claimed. These samples included, but were not limited to, transactions of large dollar amounts; duplicate transactions; unusual spending trends; inconsistencies; even dollar amounts; descriptions indicating potentially unallowable costs; frequency; and transactions near or after award expiration. Based on our initial results, NSF OIG chose to expand testing and selected an additional sample to include an additional 55 judgmental transactions and 6 cluster issue areas. In total, Kearney tested the judgmental transactions and 6 cluster issue areas, and we reported the results and findings within the body of this performance audit report. Please see [Appendix A](#) of this report for more information regarding the scope and methodology of the audit.

Kearney determined that the University costs charged to its NSF-sponsored agreements did not always comply with applicable Federal requirements. Specifically, we determined that claimed costs totaling \$639,479 were questioned and determined to be either unallowable, unallocable, unreasonable, and/or not in conformity with NSF award terms and conditions and Federal requirements. The [Findings](#) section of this report further describes the costs in question, the basis for our findings, and the recommended actions to be taken by the University. The results of our findings were not projected over the entire award population tested in our audit period.

Kearney conducted this performance audit in accordance with Generally Accepted Government Auditing Standards (GAGAS), 2011 Revision, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our

audit objectives. NSF OIG assessed the risk and approach for the audit by conducting planning, data mining, and analytical procedures over the universe of data provided by the University. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. The results of our findings were not projected over the entire award population tested in our audit period. The purpose of this report is to communicate the results of Kearney's performance audit and our related findings and recommendations.

Thank you for providing us with the opportunity to assist the NSF OIG and conduct the performance audit of the University. Kearney appreciates the cooperation provided by NSF's personnel during the audit.



Kearney & Company, P.C.
Alexandria, Virginia
September 29, 2017

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Abbreviations

AAG	Award and Administration Guide
CFR	Code of Federal Regulations
FDP	Federal Demonstration Partnership
GAGAS	Generally Accepted Government Auditing Standards
IDC	Indirect Costs
Kearney	Kearney & Company, P.C.
MRI	Major Research Instrumentation
MTDC	Modified Total Direct Cost
NSF	National Science Foundation
OIG	Office of Inspector General
OMB	Office of Management and Budget
PI	Principal Investigator
RAM	Resolution and Advanced Monitoring Branch
University	University of Southern California
USC	University of Southern California

Objective

As requested by the National Science Foundation (NSF) Office of Inspector General (OIG), Kearney & Company, P.C. (defined as “Kearney,” “we,” and “our” in this report) audited a sample of the University of Southern California’s (defined as “USC” or “University” in this report) claimed costs on NSF awards. Kearney conducted this performance audit in accordance with Generally Accepted Government Auditing Standards (GAGAS), issued by the Comptroller General of the United States.

NSF OIG initiated an audit of costs claimed by the University on NSF awards made to the University. The audit objective was to determine if costs claimed were allowable, allocable, reasonable, and in conformity with NSF award terms and conditions and applicable Federal financial assistance requirements. Kearney conducted the performance audit by testing costs claimed by the University and reporting on only the transactions and cluster areas provided.

Please see [Appendix A](#) of this report for more information regarding the scope and methodology of the audit.

Background

NSF is an independent Federal agency whose mission is “[t]o promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense...” NSF funds research and education in science and engineering by awarding grants and contracts to educational and research institutions in all parts of the United States. Through grants, cooperative agreements, and contracts, NSF enters into relationships with non-Federal organizations to fund research education initiatives and assist in supporting internal program operations. USC, which is located in Los Angeles, CA, is an NSF grant recipient. As of September 30, 2014, USC received 603 NSF awards, totaling \$324,028,578, during the scope of the audit.

Audit Results

Kearney conducted this performance audit in accordance with GAGAS. 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. NSF OIG assessed the risk and approach for the audit by conducting planning, data mining, and analytical procedures over the universe of data provided by the University. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. The results of our findings were not projected over the entire award population tested in our audit period.

Conclusion

When conducting the performance audit, Kearney gathered sufficient evidential matter to support our findings and conclusions. We summarized our questioned costs identified while conducting the audit in **Table 1**.

Table 1. Schedule of Questioned Costs

Finding Description	Total Questioned Costs ¹ by Finding	Reference
Unreasonable Expenses Near Award Expiration	\$ 304,290	Finding #1
Misapplication of Indirect Costs (IDC) on Subawards	217,387	Finding #2
Unsupported or Incorrect Charges to Participant Support	55,182	Finding #3
Unreasonable, Unallowable, or Unsupported Travel Costs	40,199	Finding #4
Unreasonable or Unallocable General Expense Charges	9,364	Finding #5
Untimely Posting of Travel Charges	8,640	Finding #6
Unreasonable Payroll Charges	4,417	Finding #7
Grand Total	\$ 639,479	

Source: Auditor summary of findings over NSF-provided data from USC during the period October 1, 2011 to September 30, 2014

¹ Total Questioned Costs include direct and indirect costs.

Findings

Finding 1 – Unreasonable Expenses Near Award Expiration

Table 2. Questioned Cost Breakdown by Award

Award No.	Total Questioned Costs
	\$ 20,409
	6,025
	21,899
	2,466
	16,272
	56,696
	1,510
	31,375
	23,012
	10,194
	106,069
	6,434
	1,929
Grand Total:	\$ 304,290

Source: Auditor analysis of NSF-provided data from USC during the period October 1, 2011 to September 30, 2014

Expenses for 13 NSF awards, totaling \$304,290, claimed near the award expiration did not appear to benefit the award or appear necessary for the administration of the award. Kearney questioned the allocability of the purchases, as each was not received in time to provide meaningful use during the award period. The expenses were questioned based on the criteria referenced in [Appendix C](#):

- Reasonable Costs;
- Allocable Costs;
- Post-End Date Costs; and
- NSF Major Research Instrumentation (MRI) policy.

According to 2 Code of Federal Regulations (CFR) Section 220, Appendix A, Section C.3, to be considered a reasonable cost under a Federal grant, a cost incurred must reflect the action that a “prudent person” would have taken under the circumstances prevailing at the time the decision was made.

2 CFR 220, Appendix A, Section C.4 states that a cost is allocable to an award if it is incurred solely to advance the work under the award; it benefits both the award and work of the institution in proportions that can be reasonably approximated; or it is necessary to the overall operation of the institution and is assignable in part to sponsored projects.

Regarding Post-Expiration Costs, under NSF's *Award and Administration Guide* (AAG), Chapter V, Section A.c, charges to an award must be made on or before the expiration date. A charge may be deemed valid when equipment is ordered well in advance of the expiration date but, due to unusual or unforeseen circumstances, delivery of such purchases is delayed beyond award expiration. Kearney did not feel that sufficient documentation was provided showing the equipment being ordered well in advance and evidencing a delay in delivery for these charges.

Kearney questioned the following expenses near award expiration:

- **Award No. [REDACTED]** – A hydraulic pump, totaling \$20,409, was not operational by the end of the award and was installed after the award had expired.
- **Award No. [REDACTED]** – A laboratory clean hood, totaling \$6,025, was ordered during the last month of the award period and delivered the month after the award had expired. No further extension requests were made to NSF after award expiration.
- **Award No. [REDACTED]** – DNA analysis services, totaling \$21,899, were completed 3 days prior to award expiration. Performing an analysis 3 days prior to award expiration does not appear as a reasonable time to incur the expenses and complete the project.
- **Award No. [REDACTED]** – Cell phones from Amazon were purchased for \$2,466 in the last month of the award. Although the University stated that the cell phones were needed for the final Testing Phase in their follow-up response, a cell phone purchase within the last month of the award was unreasonable to be the sole benefit of the award. In addition, the purchase does not reflect the action of a prudent person, as they charged the full amount to the award, when the award will only benefit from a portion of the cell phone's useful life. The cell phones were available for less than 1 percent of the award period (roughly 24 out of 1,446 days).
- **Award No. [REDACTED]** – A high-precision isotopic piece of equipment was purchased for \$16,272 and received within the last 4 months of the award period. When an older model of the equipment was previously purchased on the award, the purchase of the new equipment to be used at the end of award was not reasonable. Kearney did not find it reasonable for the equipment purchase to be fully charged to the award when the same functioning piece of equipment was in use for a majority of the award period already. Specifically, the purchase does not reflect the action of a prudent person, as they charged the full amount to the award, when the award will only benefit from a portion of the equipment's useful life. The equipment was available for less than 7 percent of the award period (roughly 108 out of 1,477 days).
- **Award No. [REDACTED]** – Lab equipment items, totaling \$41,506, were purchased within 1 month of award expiration, which was not reasonable, given the short period of time remaining on the award for which the equipment could be utilized. Additional lab equipment items were purchased, totaling \$15,190, and arrived after award expiration. Total questioned expenses for this award are \$56,696.
- **Award No. [REDACTED]** – Hydrogen was purchased to replenish a laboratory within the last 2 weeks of the award period, totaling \$1,510. Justifiable support was not provided for the purchase near expiration.
- **Award No. [REDACTED]** – A computer, totaling \$31,375, was installed 15 days prior to the end of the award. The purchase does not reflect the action of a prudent person, as they

charged the full amount to the award, when the award will only benefit from a portion of the computer's useful life. The computer was available for use for less than 2 percent of the award period (roughly 15 out of 852 days).

- **Award No. [REDACTED]** – Research equipment, totaling \$16,193, was used past the expiration date and taken by the Principal Investigator (PI) to another university. Therefore, this item was not fully allocable to the award. Additionally, the equipment was unreasonably charged to the award 1 month prior to expiration. An additional purchase of supplies 1 month prior to award expiration, totaling \$6,819, was transferred onto the award, which was not reasonable. Total questioned expenses for this award were \$23,012.
- **Award No. [REDACTED]** – A data collection instrument, totaling \$10,194, was purchased 4 days prior to award expiration. Although USC noted future use of the instrument, the entire purchase was not used on this specific award and, therefore, is not allocable to the award, as it was not received prior to award expiration.
- **Award No. [REDACTED]** – Equipment, totaling \$106,069, was unreasonably charged to the award, because the equipment was received after award expiration. Due to the timing of receipt, the equipment needed to support the scientific and engineering instruments was not used until after expiration. As such, the instrument was not operational by the end of the award, which does not comply with NSF's MRI policy.
- **Award No. [REDACTED]** – Lab supplies, totaling \$6,434, were ordered in August 2013, and award expiration was September 30, 2013. USC did not provide physical documentation as to when the items were received to evidence that the items were used for this specific award. USC stated that items were still in use for two other awards. As such, the items should not have been fully allocated to this award.
- **Award No. [REDACTED]** – A laptop computer purchase, totaling \$1,929, was transferred onto the award approximately 1 month before the expiration date. When asked about the use of the laptop, USC noted that the computer would be used for taking research notes and writing papers, which do not appear reasonable, as the computer was unreasonably used for additional activities outside of the award itself. The transfer does not reflect the action of a prudent person, as they charged the full amount to the award, when the award will only benefit from a portion of the computer's useful life. The computer was available for use for less than 4 percent of the award period (roughly 37 out of 911 days).

The cause of charging awards near its expiration may vary on a case-by-case basis. USC did not properly plan the purchase of items or equipment within the allotted period awarded to be operational for regular research. Charging grant funds near award expiration may result in noncompliance with NSF's administrative terms and conditions determined in the original grant agreements. Inappropriate use of previously funded grants may result in repayment to NSF.

Recommendations: Kearney recommends that NSF's Director of the Division of Institution and Award Support request that USC:

1. Resolve the \$304,290 in questioned costs and repay the sustained questioned cost amounts, as directed by the NSF Resolution and Advanced Monitoring (RAM) Branch.

2. Ensure purchases are made timely within the award period of performance to allow the purchases to be fully utilized in the actual conduct of the research. For items that are needed to be purchased near award expiration, USC should ensure justification is supported in the NSF proposal or prior NSF Grant Officer approval is obtained.

Management's Response:

- **Award No. [REDACTED]** – USC disagrees that this was an unreasonable expense. As this award was a Major Research Instrumentation (MRI) Program award and the objective of MRI Program grants is the acquisition or development of the instrumentation itself, not the use of the instrumentation in support of a separate research objective on the project.
- **Award No. [REDACTED]** – USC disagrees that this was an unreasonable expense because the laboratory “PCR” hood was necessary to perform the last portion of data sample analysis.
- **Award No. [REDACTED]** – USC disagrees that this was an unreasonable expense. NSF’s Proposal and Award Policies and Procedures Guide (PAPPG) allows for the payment of services even past the end date of the award as long as the services were rendered prior to the end date. The service was performed prior to the end date of the grant.
- **Award No. [REDACTED]** – USC disagrees that this was an unreasonable expense. The subject matter of the PI’s research is mobile computing. As such, the PI regularly purchases cellphones for research-related and software development purposes. These cell phones were purchased in order to finish experiments.
- **Award No. [REDACTED]** – USC disagrees that this was an unreasonable expense. This charge was for the purchase of a high-precision isotopic piece of equipment that was used to make necessary measurements for the project, which occurred well before the project end date.
- **Award No. [REDACTED]** – USC disagrees that this was an unreasonable expense. As this award was a MRI award and the objective of MRI grants is the acquisition or development of the instrumentation itself, not the use of the instrumentation in support of a separate research objective on the project.
- **Award No. [REDACTED]** – USC disagrees that justifiable support was not provided for the purchase near award expiration. The questioned transaction involved the purchase of hydrogen gas, which is indispensable to the operation of the PI’s crystal growth equipment, a fundamental tool used in this project up through its end date. The PI allocated the total expense based on usage between the award under review, a then-active award from another Federal sponsor, and non-sponsored funds, as reflected in supporting documentation provided to OIG.
- **Award No. [REDACTED]** – USC disagrees that this was an unreasonable expense. This equipment was a custom-made special upgrade that took a significant amount of time to both build and then to install. Although this equipment was charged 10 days prior to the end of the grant, it was ordered over eight months before the end date of the award. The equipment was in use during its installation for roughly 2 and a half months prior to the end date of the award, not 15 days. The purchase benefitted this grant because prior equipment used to perform the functions the computer enabled was inoperable and also obsolete.

- **Award No. [REDACTED]** – USC disagrees that this was an unreasonable expense. The purpose of the fellowship award funding mechanism is to develop the next generation of faculty, which it did. The equipment was used by the PI in his research at USC for an additional 15 months after the end date of the award, and the PI has continued to use the equipment at his new institution. In addition, the equipment questioned here and its relationship to the aims of the grant were documented by the PI in the Final Report.
- **Award No. [REDACTED]** – USC disagrees that this expense is not allocable to the award under review. The OIG’s characterization of this award is incorrect. While the data collection instrument was purchased 4 days before the end date of a grant period, the grant was continued through August 2017. In addition, one of the explicit purposes of the award under review was to develop novel instrumentation to support this continuing research effort. This charge was for the purchase of a data acquisition board, which was a line item in the equipment budget for this award, and this purchase enabled the equipment to work as intended.
- **Award No. [REDACTED]** – USC disagrees that this was an unreasonable expense. As this award was a MRI Program award and the objective of MRI grants is the acquisition or development of the instrumentation itself, not the use of the instrumentation in support of a separate research objective on the project.
- **Award No. [REDACTED]** – Due to an inadvertent oversight, USC did not provide physical documentation as to when the items were received. We have included such documentation as an attachment to this response.
- **Award No. [REDACTED]** – While the laptop was necessary for a student to support core activities related to the research such as writing papers, taking research notes, and developing and compiling code which can then be installed and run on a smartphone, USC does not contest this finding.

See [Appendix B](#) for USC’s complete response.

Auditor’s Response: For these costs that USC disagreed with, our conclusions remain unchanged.

- **Award No. [REDACTED]** – For the hydraulic pump, totaling \$20,409, that was not installed and fully developed until after the award had expired, it is reasonable that USC should have expected delays due to the “highly technical installation.” While Kearney agrees the grant was to acquire equipment, USC stated in their original follow-up response that the purpose of the award “was to purchase and install robot instrumentation.” However, the equipment purchased was not installed by the end of the award period. USC should have appropriately monitored purchases and requested an award extension if they knew about the delayed receipt and installation of award equipment. Additionally, USC used MRI guidance from 2015 in its response, which would not be applicable to the costs in question. Thus, the explanation provided did not change our conclusion that the expenses were unreasonable.
- **Award No. [REDACTED]** – For the laboratory clean hood, totaling \$6,025, that was ordered during the last month of the award period and delivered the month after the award had expired, both the equipment and the related work occurred outside of the award period.

Award period extension requests were made to NSF after award expiration. The explanation provided did not change our conclusion that the expenses were unreasonable.

- **Award No. [REDACTED]** – For the DNA analysis services, totaling \$21,899, that were completed 3 days prior to award expiration, our opinion is not changed that performing an analysis 3 days prior to award expiration does not appear reasonable. Services provided 3 days before the end date of an award are in jeopardy of not being completed prior to the award end date. Also, 3 days prior to the award end date does not provide sufficient time to fully incorporate the results of the analysis into the project. The explanation provided did not change our conclusion that the expenses were unreasonable.
- **Award No. [REDACTED]** – For the cell phones, totaling \$2,466, in the last month of the award, it is unreasonable to be the sole benefit of the award when the cell phones were available for less than 1 percent of the award period. One month does not provide adequate time to test the phones and report the results in the grant period. Additionally, USC states that the PI regularly purchases cell phones for research. If this is a regular occurrence, the cell phone purchases would be expected to be outlined as a necessary and reasonable purchase within the award, and the cell phones purchases are not specifically budgeted. The report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – For the high-precision isotopic piece of equipment, purchased for \$16,272, it remains unreasonable for the equipment purchase to be fully charged to the award. The same functioning piece of equipment was in use for a majority of the award period already and it was received within the last 4 months of the award period. The report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – Lab equipment items, totaling \$41,506, were purchased within 1 month of award expiration. Additional lab equipment, totaling \$15,190, arrived after award expiration. USC stated in their original follow-up response that the equipment was necessary for testing. However, the equipment items were unable to be fully utilized for testing, as they did not arrive timely prior to award expiration. USC should have appropriately monitored purchases and requested an award extension if they knew about the delayed receipt of award equipment. Additionally, USC used MRI guidance from 2015 in its response, which would not be applicable to the costs in question. Thus, the report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – USC did not concur with the questioned costs for the hydrogen to replenish a laboratory within the last 2 weeks of the award period, totaling \$1,510. Regardless of any allocation method used, additional justifiable support was not provided for the purchase of supplies so close to the grant expiration. Replenishing hydrogen in a laboratory using NSF award funding near award expiration makes the purchase unreasonable and unallocable, as the purchased hydrogen did not benefit this award. The explanation and support provided did not change our conclusion that the expenses were unreasonable.
- **Award No. [REDACTED]** – For the computer, totaling \$31,375, although it may have been in use during installation, this still represents less than 9 percent of the award period (roughly 75 out of 852 days). Additional justifiable support was not provided for the purchase near expiration. The explanation and support provided did not change our conclusion that the expenses were unreasonable.

- **Award No. [REDACTED]** – Additional justifiable support was not provided to support the research equipment, totaling \$16,193, or the additional purchase of supplies 1 month prior to award expiration, totaling \$6,819. The explanation and support provided did not change our conclusion that the expenses were unreasonable. Total questioned expenses for this award remain \$23,012.
- **Award No. [REDACTED]** – For the data collection instrument, totaling \$10,194, that were purchased 4 days prior to award expiration, our conclusion remains unchanged. Although USC noted future use of the instrument in Continuing Grant No. [REDACTED], this instrument is not allocable to Award No. [REDACTED] and, thus, should have not been charged to the award. The report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – For the equipment, totaling \$106,069, the finding remains unchanged that the equipment was received after award expiration. Specific sponsor approval does not mean that the costs should automatically be considered reasonable and appropriate when not in compliance with NSF’s MRI policy. While Kearney agrees the grant was to acquire equipment, NSF 09-502, *MRI Program Solicitation for Instrument Development and Acquisition*, states: “Instruments are expected to be operational for regular research use by the end of the award period.” The equipment purchased was not acquired until after the grant’s expiration and thus not operational for research by the end of the grant. USC should have appropriately monitored purchases and requested an award extension if they knew about the delayed receipt and operation of award equipment. Additionally, USC used MRI guidance from 2015 in its response, which would not be applicable to the costs in question. Thus, the report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – For the lab supplies, totaling \$6,434, USC provided additional documentation through an invoice, but it did not provide documentation to support the receipt of good date. Although the invoice had a ship date and notes “UPS 3 Day Ground,” that does not mean the receipt actually occurred within 3 days. Further, the documentation provided by USC did not evidence that the supplies were used only on Award No. [REDACTED]. The explanation and support provided did not change our conclusion that the expenses were unreasonable.
- **Award No. [REDACTED]** – For the laptop computer purchase, totaling \$1,929, USC did not contest the finding. The report finding and recommendations remain unchanged.

Finding 2 – Misapplication of Indirect Costs (IDC) on Subawards

Kearney questioned the application of IDCs for several subawards on NSF Award No. [REDACTED], totaling \$217,387. We determined that the \$25,000 IDC limitation requirement was not properly followed based on the following criteria, referenced in [Appendix C](#):

- Exclusions of Some Costs from IDCs Recovery Calculations and
- Modified Total Direct Cost (MTDC)

Kearney determined that USC did not limit IDCs for subawards so that IDCs were only applied up to the allowable amount. We totaled the transactions for each subawardee that were classified under the “Sub Contracts, \$25,000” object code and noted subawards exceeding the \$25,000 threshold and, thus, having applied IDCs over the allowable amount, shown in **Table 3**.

Table 3. Questioned Cost Breakdown by Award

Subaward	Total Charges to Object Code 15310 ² A	Questioned Cost Amount B = (A – 25,000) * .62
University of Hawaii at Manoa	\$ 113,052	\$ 54,592
Bigelow Lab for Ocean Sciences	88,612	39,439
University of Tennessee	79,670	33,895
Woods Hole Oceanographic Institution	57,491	20,145
University of Delaware	57,474	20,134
California State University – Monterey Bay	50,257	15,659
Photon Systems Inc.	48,745	14,722
Rutgers University	35,548	6,540
University of North Carolina	33,198	5,082
Western Washington University	30,031	3,119
Colorado School of Mines	28,697	2,292
East Carolina University	27,851	1,768
Total		\$ 217,387

Source: Auditor analysis of NSF-provided data from USC during the period October 1, 2011 to September 30, 2014

Per the 2 CFR Part 220, 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).”

Due to the nature and complexity of the award, USC collaborated with many other subawarded universities. USC divided the subawards into separate purchase orders that each had its own objective and unique scope of work, rather than treating each university as a stand-alone subaward. USC applied the IDC threshold requirement to each subaward purchase order, instead of the aggregate level, thus causing subaward universities to exceed the \$25,000 threshold requirement. Kearney did not receive support to evidence that this purchase order IDC application approach was approved by the NSF Grant Officer.

Recommendations: Kearney recommends that NSF’s Director of the Division of Institution and Award Support request that USC:

² The NSF OIG analyzed USC’s financial data relating to USC’s General Ledger Object Code Name “SUB CONTRACTS < \$25 000.” Subawards with multiple transactions were aggregated together for the total amount charged to each university.

1. Resolve the \$217,387 in questioned costs and repay the sustained questioned cost amounts, as directed by the NSF RAM Branch.
2. Avoid questioned costs as they relate to the application of IDCs on subawards by obtaining prior NSF approval from its assigned Grant Officer for changes to the grant agreement or for exceptions to grant policies and procedures, especially for large and complex awards.

Management's Response: USC disagrees with this finding. There is no requirement that USC aggregate all subawards made to a single institution and treat them as a single subaward for purposes of applying USC's F&A rate to the first \$25,000 of direct charges. Rather, as noted in the finding, the prime awardee's F&A cost rate is to be applied to a modified total direct cost (MTDC) base that includes the first \$25,000 of each subaward, regardless of whether the subaward is made to one institution or multiple institutions.

The specific subawards under review involved the collection of unique samples at different field sites around the world, each of which required the use of different collection, analysis, and reporting activity at each site. Oversight of these efforts required monitoring separate workstreams, collecting and analyzing distinct reports, and ensuring that each subproject was performed appropriately from both a scientific and programmatic perspective. Under NSF's Cooperative Agreement Financial & Administrative Terms and Conditions (CA-FATC), prior approval is not required before implementing the subaward methodology USC employed, as suggested by the OIG. Each subaward was therefore executed and administered separately, and the costs that USC incurred for administering two or more subawards to the same institution were the same costs that USC would have incurred for administering two subawards to two different institutions. Accordingly, USC's approach of applying its F&A rate to the first \$25,000 of each subaward was appropriate, regardless of whether there were multiple subawards to the same institution.

See [Appendix B](#) for USC's complete response.

Auditor's Response: For these costs that USC disagreed with, our conclusions remain unchanged. Because of the nature and complexity of the award, USC chose to divide the subawards under NSF Award No. [REDACTED] into individual purchase orders to separate objectives and the unique scope of work, rather than treating each university as a stand-alone subaward for USC's convenience. USC applied the IDC threshold requirement to each subaward purchase order, instead of the aggregate level, thus causing subaward universities to exceed the \$25,000 threshold requirement. USC's response to this finding does not warrant proper interpretation of MTDC requirements under OMB Circular A-21 for awards made prior to December 26, 2014, as Kearney considers each university a stand-alone subawardee. Additionally, USC used CFR §200.68, *Modified Total Direct Costs* guidance in its response, which would not be applicable to the costs in question. Further, we did not receive support to evidence that this purchase order IDC application approach was approved by the NSF Grant Officer. Thus, the explanation provided by USC did not change our conclusion that the IDCs were misapplied.

Finding 3 – Unsupported or Incorrect Charges to Participant Support

Table 4. Questioned Cost Breakdown by Award

Award No.	Total Questioned Costs
	\$ 1,540
	517
	5,828
	1,663
	20,873
	69
	8,122
	11,293
	5,277
Grand Total:	\$ 55,182

Source: Auditor analysis of NSF-provided data from USC during the period October 1, 2011 to September 30, 2014

Expenses for nine NSF awards, totaling \$55,182, were incorrectly charged as participant support. University employee charges to participant support are unallowable. The expenses were questioned based on the following criteria, referenced in [Appendix C](#):

- Participant Support Costs.

NSF AAG, Chapter V, Section 8.a defines participant support costs as direct costs for items such as stipends or subsistence, travel allowances, and registration fees paid to or on behalf of participants or trainees in connection with conferences or training projects. Participant support costs should not be used for University employees, unless specifically permitted under that provision.

Kearney questioned the following expenses that were incorrectly charged to participant support:

- **Award No.** [REDACTED] – Travel reimbursement expenses related to a USC employee attending a conference in Colorado totaled \$1,540 and were incorrectly charged as participant support.
- **Award No.** [REDACTED] – Reimbursement expenses related to a USC employee attending a conference in California totaled \$517 and were incorrectly charged as participant support. Of the \$517 expenses in question, \$46 related to unallowable alcohol expenses charged to the award. USC agreed that these charges were related to a USC employee and that the alcohol charges should not have been charged to the award in any case.
- **Award No.** [REDACTED] – Two expenses relating to travel to Japan were charged to participant support, totaling \$5,828. USC agreed that the charge totaling \$3,661 for a student satellite project was incorrectly charged to participant support. USC stated that the other charge, totaling \$2,167, was an expense related to a non-enrolled student in the summer of 2012 who was not considered a staff or faculty employee. However, Kearney noted that the individual had a USC employee ID number and was paid a research

assistant's salary for the months of April and May 2012. The travel end date for the expenses related to the award was within this timeframe.

- **Award No. [REDACTED]** – Expenses relating to travel to Japan and reimbursed to a USC employee, totaling \$1,663, were incorrectly charged as participant support.
- **Award No. [REDACTED]** – Payroll expenses were incorrectly charged to participant support, totaling \$20,873. The costs were noted to not be participant support, but evidence to support that conclusion was not provided. Therefore, the participant support expenses in question were not fully supported and appear to be commingled between participant and non-participant support accounts within the same award.
- **Award No. [REDACTED]** – A USC employee included herself in a conference meal reimbursement with other participants. The charges related to the USC employee totaled \$69 and were incorrectly charged as participant support.
- **Award No. [REDACTED]** – Participant support charges, totaling \$8,122, related to speaker fees were unallowable. The charges do not meet the requirements of a participant support charge, as a speaker is neither a participant nor a trainee.
- **Award No. [REDACTED]** – A reimbursement expense, totaling \$11,293, for a USC employee to travel to [REDACTED] for a special study was incorrectly charged to participant support.
- **Award No. [REDACTED]** – Three expenses, totaling \$5,277, related to travel reimbursement for USC employees to attend a workshop in Washington, D.C. were incorrectly charged as participant support.

The cause of incorrectly charging participant support accounts may vary on a case-by-case basis. Clerical errors or PI oversight were the main reasons for the incorrect charges. USC's Office of Financial Analysis does not have oversight to determine which accounts relate to NSF awards and should be charged to participant support. The PIs of the awards are responsible for tracking their participant support accounts. System incapability of tracking participant support, as well as incorrectly charging funds to participant support accounts, may result in noncompliance with NSF's administrative terms and conditions determined in the original grant agreements, as well as noncompliance with the terms of the award. Finally, inappropriate use of grant funds may result in repayment to NSF.

Recommendations: Kearney recommends that NSF's Director of the Division of Institution and Award Support request that USC:

1. Resolve the \$55,182 in questioned costs and repay the sustained questioned cost amounts, as directed by the NSF RAM Branch.
2. Ensure that PIs are informed on the NSF AAG, as well as applicable 2 CFR compliance requirements over participant support charges. Additionally, USC should periodically monitor its PIs participant support accounts to ensure appropriate use.
3. Ensure participant support accounts entered into the accounting system are appropriately flagged to be used for participant support charges only.

Management's Response:

- **Award Nos.** [REDACTED], [REDACTED], [REDACTED], and [REDACTED] – USC is not contesting these findings. While the reimbursements did support the aims of the respective awards, they were inadvertently charged to the participant support companion accounts in error.
- **Award No.** [REDACTED] – USC is not contesting this finding. At the time, USC was transitioning between systems and the participant support expenses on this account were comingled. In early 2015, USC strengthened existing procedures to ensure that separate companion accounts were created for any awards with participant support.
- **Award No.** [REDACTED] – USC is not contesting this finding. While the reimbursement did support the aims of the award, it was inadvertently charged to the participant support companion account in error.
- **Award No.** [REDACTED] – USC does not agree with this finding. These participants were all named in the proposal for supplemental funding to this award, which was approved and funded by NSF. In addition, the amount in question was separately budgeted and charged to a companion account where no indirect charges were applied. As such, USC did not inappropriately burden this charge with indirect costs, nor did USC bill the NSF for indirect costs as claimed in this finding.
- **Award No.** [REDACTED] – USC is not contesting the directly charged portion of this finding. However, the amount in question was separately budgeted and charged to a companion account where no indirect charges were applied. As such, USC did not inappropriately burden this charge with indirect costs, nor did USC bill the NSF for indirect costs as claimed in this finding.
- **Award No.** [REDACTED] – USC is not contesting this finding. While the reimbursement did support the aims of the award, it was inadvertently charged to the participant support companion account in error.

See [Appendix B](#) for USC's complete response.

Auditor's Response: For these costs that USC disagreed with, our conclusions remain unchanged.

- **Award No.** [REDACTED] – For the travel reimbursement expenses related to a USC employee attending a conference in Colorado, totaling \$1,540, USC did not contest the finding. The report finding and recommendations remain unchanged.
- **Award No.** [REDACTED] – For the reimbursement expenses related to a USC employee attending a conference in California, totaling \$517, USC did not contest the finding. The report finding and recommendations remain unchanged.
- **Award No.** [REDACTED] – For the two expenses relating to travel to Japan charged to participant support, totaling \$5,828, USC did not contest the finding. The report finding and recommendations remain unchanged.
- **Award No.** [REDACTED] – For the expenses relating to travel to Japan and reimbursed to a USC employee, totaling \$1,663, USC did not contest the finding. The report finding and recommendations remain unchanged.

- **Award No. [REDACTED]** – For the payroll expenses incorrectly charged to participant support, totaling \$20,873, USC did not contest the finding. The report finding and recommendations remain unchanged. USC indicated that they strengthened procedures to segregate participant support in the companion account. While these strengthened procedures were not subject to audit or review, we commend USC’s actions to strengthen controls.
- **Award No. [REDACTED]** – For the USC employee including herself in a conference meal reimbursement with other participants, totaling \$69, USC did not contest the finding. The report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – USC disagreed that the participant support charges, totaling \$8,122, related to speaker fees were unallowable. Based on discussions with USC, Kearney noted that the participant support crosswalk provided to NSF and Kearney was difficult to gather because, at the time of the audit scope, the system previously in place did not track participant support accounts from a systems standpoint. Based on previous discussions, USC stated that in order to provide the participant support crosswalk, USC personnel had to ask the PI on the grant to identify which account was classified as participant support. For that reason, during discussions, USC stated that there may be accounts in the crosswalk that were mistakenly identified as participant support. As NSF was unable to rely on the initial participant support crosswalk provided during the risk assessment and review. Kearney is unable to rely on the participant support crosswalk that USC provided, as there has been a noted breakdown in the system. Additionally, USC did not provide further evidence to confirm IDCs were not charged under this award. Thus, the report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – USC did not contest the direct cost portion of a USC employee’s travel to [REDACTED], totaling \$11,293, but it did contest the indirect portion. Based on discussions with USC, Kearney noted that the participant support crosswalk provided to NSF and Kearney was difficult to gather because, at the time of the audit scope, the system previously in place did not track participant support accounts from a systems standpoint. Based on previous discussions, USC stated that in order to provide the participant support crosswalk, USC personnel had to ask the PI on the grant to identify which account was classified as participant support. For that reason, during discussions, USC stated that there may be accounts in the crosswalk that were mistakenly identified as participant support. As NSF was unable to rely on the initial participant support crosswalk provided during the risk assessment and review. Kearney is unable to rely on the participant support crosswalk that USC provided, as there has been a noted breakdown in the system. Additionally, USC did not provide further evidence to confirm IDCs were not charged under this award. Thus, the report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – For the three expenses incorrectly charged as participant support, totaling \$5,277, USC did not contest the finding. The report finding and recommendations remain unchanged.

Finding 4 – Unreasonable, Unallowable, or Unsupported Travel Costs

Table 5. Questioned Cost Breakdown by Award

Award No.	Total Questioned Costs
██████████	12,671
██████████	3,729
██████████	17,279
██████████	6,520
Grand Total:	\$ 40,199

Source: Auditor analysis of NSF-provided data from USC during the period of October 1, 2011 to September 30, 2014

Travel expenses for five NSF awards, totaling \$40,199, were questioned as unreasonable, unallowable, or unsupported. The travel expenses were questioned based on the following criteria, referenced in [Appendix C](#):

- Reasonableness Costs and
- Allocable Costs.

According to 2 CFR Section 220, Appendix A, Section C.3, to be considered a reasonable cost under a Federal grant, a cost incurred must reflect the action that a “prudent person” would have taken under the circumstances prevailing at the time the decision was made.

Per 2 CFR 220, Appendix A, Section C.4, a cost is allocable to an award if it is incurred solely to advance the work under the award; it benefits both the award and work of the institution in proportions that can be reasonably approximated; or it is necessary to the overall operation of the institution and is assignable in part to sponsored projects.

Kearney questioned the following expenses related to travel:

- **Award No.** ██████████ – Travel expenses, totaling \$12,671, related to an ██████████ car rental and travel to and/or from ██████████ University, ██████████, and ██████████ were unallowable. USC agreed that these expenses should not have been charged to the award and will repay the funds to NSF.
- **Award No.** ██████████ – PI travel expenses to a conference in Germany, with a separate trip to collaborate at a university in ██████████, were charged to the award, totaling \$3,729. USC stated that the PI’s collaboration “focused on the analysis of primitive equations of the atmosphere, consistent with the research aims of the grant under review.” The separate trip to ██████████ is questioned for reasonableness, as USC’s response does not provide enough evidence showing the amount incurred for the ██████████ travel reflects the action of a prudent person and the ██████████ collaboration was not listed within the award’s Annual or Final Project Report. In addition, the Final Project Report states that no international collaboration occurred for the PI.

- **Award No. [REDACTED]** – The PI traveled to [REDACTED], [REDACTED], [REDACTED], and [REDACTED] from January 2013 through August 2013 to collaborate with universities. The travel expenses for one trip totaled \$13,831, and the collaborations were not included in the initial NSF proposal submitted. This trip was not mentioned in the award proposal for an 8-month travel period. As the PI returned early (July), another flight home was purchased and charged to the award. The original round trip flight was not used and was not refundable. An additional trip to [REDACTED], totaling \$3,448, charged to the award for further collaborations was questioned. Based on supporting documentation provided, only certain costs were charged to the grant (i.e., airfare, car rental, and a 1-night stay in a hotel). USC stated that the purpose of this trip was to collaborate with professors and work on joint publications; however, the documentary evidence provided was not sufficient to support this and the trip was not mentioned in the Annual or Final Project Report. Because this specific travel was not included in the budget and the total travel exceeded the budgeted amount, the aforementioned travel booked does not reflect the action of a prudent person. Additionally, there is no documented evidence of how this trip directly benefitted the award; therefore, Kearney questioned these travel charges. Total questioned expenses for this award were \$17,279.
- **Award No. [REDACTED]** – PI travel expenses, totaling \$6,520, were unreasonably charged to the award. The expenses related to a conference in Massachusetts to publish research results. The PI had to travel from [REDACTED] to attend the conference in Massachusetts; however, publishing the results could have been achieved in other ways, such as through a publication, and international travel was not considered prudent. Travel was not budgeted in the original proposal, but 33 percent of the award budget was rebudgeted for travel. Travel should have been considered within the original budget if the PI planned to publish results at a conference outside of [REDACTED].

The cause of unreasonable, unallowable, or unsupported charges to awards may vary on a case-by-case basis. One cause is that travel expenses were charged to the awards in error. Additionally, USC is authorized to re-budget among budget categories, including travel expenses, without obtaining prior approval from NSF, per the Federal Demonstration Partnership (FDP) terms and conditions, as long as the rebudgeting does not constitute a change in scope. However, significant changes to the budget within the original award may call into question the reasonableness and prudence of the charge and how it relates to the administrative terms and conditions determined in the original grant agreement. Unreasonable, unallowable, or unsupported charges of previously funded awards may result in repayment to NSF.

Recommendations: Kearney recommends that NSF’s Director of the Division of Institution and Award Support request that USC:

1. Resolve the \$40,199 in questioned costs and repay the sustained questioned cost amounts, as directed by the NSF RAM Branch.
2. Avoid questioned costs as they relate to re-budget authority and allowability by obtaining prior NSF approval from its assigned Grant Officer for significant changes in budget from the original grant agreement.

Management’s Response:

- **Award No. [REDACTED]** – USC is not contesting this finding.
- **Award No. [REDACTED]** – USC disagrees with this finding. The PI used the General Services Administration (GSA)-approved per diem rates for [REDACTED], an approved form of travel reimbursement per OMB Circular A-21 and USC Travel Policy. The PI did budget for international travel in [REDACTED] proposal, which was approved and awarded by the NSF. In addition, [REDACTED] listed travel to [REDACTED] in the Final Project Report, although [REDACTED] chose not to identify any international collaboration in the Final Project Report because [REDACTED] and [REDACTED] [REDACTED] collaborator had not successfully solved the problem.
- **Award No. [REDACTED]** – USC disagrees with this finding. This trip was mentioned in the Final Project Report in the International Travel Section. In an earlier response, the PI provided a detailed itinerary, documenting his collaborations and noting two papers that resulted from this collaborative trip and cited this award and the continuation award. The papers also included and acknowledged [REDACTED] collaborators in [REDACTED]. The itinerary and these two papers both document the direct benefit of this trip to the award. In terms of the flight charged, the research was completed ahead of schedule but it would have cost more to change the flight return date than to buy a second one way ticket.
- **Award No. [REDACTED]** – It appears that this travel was found unreasonable because the trip was not originally budgeted in the award proposal. However, under the Federal Demonstration Partnership (FDP), of which NSF is a member, universities are authorized to rebudget for travel without advance approval.

See [Appendix B](#) for USC’s complete response.

Auditor’s Response: For these costs that USC disagreed with, our conclusions remain unchanged.

- **Award No. [REDACTED]** – For the travel expenses, totaling \$12,671, related to an [REDACTED] car rental and travel to and/or from [REDACTED] University, [REDACTED], and [REDACTED], USC did not contest the finding. The report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – USC disagreed with the finding for the questioned PI travel expenses to a conference in Germany, with a separate trip to collaborate at a university in [REDACTED], totaling \$3,729. As the Final Project Report was not in agreement with itself, by including the [REDACTED] travel, but not the collaboration, and USC did not provide a sufficient additional explanation and supporting documentation, our conclusion remains unchanged.
- **Award No. [REDACTED]** – For the PI travel to collaborate with universities, USC disagreed with the finding. Total questioned expenses for this award were \$17,279, consisting of one trip totaling \$13,831 and an additional trip to [REDACTED] totaling \$3,448. While the Final Project Report mentioned the international collaboration, it only specified a timeframe of travel and did not include any explanation of the actual collaboration. Kearney expected to review further details of the trip within the Annual or Final Project Report for appropriate allocation and to evidence how all the additional university visits

directly benefitted the grant. However, the reports did not provide that sufficient detail. The explanation provided did not change our conclusion; the report finding and recommendations remain unchanged.

- **Award No.** [REDACTED] – PI travel expenses, totaling \$6,520, were unreasonably charged to the award, as we do not feel it was appropriate to spend \$6,520 to attend a conference rather than simply publishing the papers without traveling from [REDACTED] to Massachusetts. Additionally, there was no travel budgeted, and the travel occurred one month prior to award expiration. The explanation provided did not change our conclusion; the report finding and recommendations remain unchanged.

Finding 5 – Unreasonable or Unallocable General Expense Charges

Table 6. Questioned Cost Breakdown by Award

Award No.	Total Questioned Costs
[REDACTED]	\$ 71
[REDACTED]	1,129
[REDACTED]	225
[REDACTED]	6,939
[REDACTED]	340
[REDACTED]	230
[REDACTED]	205
[REDACTED]	225
Grand Total:	\$ 9,364

Source: Auditor analysis of NSF-provided data from USC during the period October 1, 2011 to September 30, 2014

General expenses, totaling \$9,364, charged to eight NSF awards were not in accordance with Office of Management and Budget (OMB) Circular A-21, *Cost Principles for Educational Institutions*. The general expenses were questioned based on the following criteria, referenced in [Appendix C](#):

- Reasonableness Costs;
- Allocable Costs; and
- Non-University Employees.

According to 2 CFR Section 220, Appendix A, Section C.3, to be considered a reasonable cost under a Federal grant, a cost incurred must reflect the action that a “prudent person” would have taken under the circumstances prevailing at the time the decision was made.

Per 2 CFR 220, Appendix A, Section C.4, a cost is allocable to an award if it is incurred solely to advance the work under the award; it benefits both the award and work of the institution in proportions that can be reasonably approximated; or it is necessary to the overall operation of the institution and is assignable in part to sponsored projects.

Additionally, per USC's non-University employee policy, USC must first consult with the Human Resources Office to confirm that the assignment cannot be filled by a university employee prior to hiring a non-University employee.

Kearney questioned the following general expenses:

- **Award No. [REDACTED]** – Lunch expenses with research collaborators, totaling \$71, were unreasonably charged to the award. No agenda or itinerary was provided to support that the meeting benefitted this specific award.
- **Award No. [REDACTED]** – Temporary employment expenses, totaling \$1,129, for a summer internship was given to a non-USC student. Kearney questioned the reasonableness, as a USC student could have performed these tasks. USC did not provide evidence that it consulted its Human Resources Office prior to hiring a temporary employee to perform the work. Additionally, the Annual and Final Project Reports did not support that the individual performed work directly benefitting the award.
- **Award No. [REDACTED]** – A 3-night hotel stay was charged to the award for a 1-day conference, totaling \$225 per night. Kearney determined the charges for the night before the conference and the night of the conference were reasonable; however, we questioned the reasonableness of the additional 1 night's stay, as USC was unable to provide any type of justification for the extended stay.
- **Award No. [REDACTED]** – Lab usage expenses for individuals, totaling \$6,939, were charged to the award. These individuals were not mentioned in the Final Project Report. Other individuals on the invoice were listed as people who worked on the grant in the Final Project Report. Since the list of individuals included within the Final Project Report were inconsistent with the lab usage invoice charges, Kearney questioned whether the individuals used the lab for the direct benefit of the award.
- **Award No. [REDACTED]** – Parking expenses for a [REDACTED] competition, totaling \$340, were transferred onto the award. The original charges were made to NSF Award No. [REDACTED], which directly relates to the [REDACTED] competition. USC stated that these charges were used to support participant middle school teachers who served as mentors for the student participants in the [REDACTED] competition. The transaction under review transferred the parking charges for teacher participants in the [REDACTED] competition event at USC. However, the expenses were transferred to NSF Award No. [REDACTED], where the [REDACTED] competition is not directly mentioned. The award originally charged, Award No. [REDACTED], does mention the [REDACTED] event. The same PI is in charge of both of these awards. Kearney questioned the allocability of the transfer due to the incorrect award account being charged.
- **Award No. [REDACTED]** – Lunch meeting expenses, totaling \$230, were charged to the award 2 days prior to the expiration period. No agenda or itinerary was provided to support that the meeting benefitted this specific award.
- **Award No. [REDACTED]** – Lunch expenses with the PI's research students, totaling \$205, were unreasonably charged to the award. No agenda or itinerary was provided to support that the meeting benefitted this specific award.

- **Award No.** [REDACTED] – A stipend for a USC research associate professor, totaling \$225, was incorrectly charged to participant support. USC agreed that these expenses should not have been charged to the award and stated the funds will be repaid to NSF.

The cause of unreasonable or unallocable general expense charges may vary on a case-by-case basis. One cause is that the PIs overseeing the awards may not closely review OMB Circular A-21 requirements or seek approval prior to charging the award. Unreasonable or unallocable charges to awards may result in noncompliance with NSF’s administrative terms and conditions determined in the original grant agreements. Inappropriate use of previously funded awards may result in repayment to NSF.

Recommendations: Kearney recommends that NSF’s Director of the Division of Institution and Award Support request that USC:

1. Resolve the \$9,364 in questioned costs and repay the sustained questioned cost amounts, as directed by the NSF RAM Branch.
2. Ensure that PIs are informed on the applicable cost principles of reasonableness and allocability for Federal awards in OMB Circular A-21 for awards made prior to December 26, 2014 and 2 CFR Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*, for awards made after December 26, 2014. Additionally, USC should periodically monitor its PIs’ accounts to ensure appropriate use.

Management’s Response:

- **Award No.** [REDACTED] – USC disagrees with this finding, as the lunch was to further the research collaboration. It is reasonable for researchers be allowed to participate in research collaboration meetings that directly benefit the award without having to create an agenda or itinerary.
- **Award No.** [REDACTED] – USC disagrees with this finding. This student was paid from a Research Experiences for Undergraduates (REU) Supplement. REU Supplements are open to application by undergraduate students from any university. In addition, this student worked on projects benefiting the grant.
- **Award No.** [REDACTED] – USC is not contesting this finding.
- **Award No.** [REDACTED] – All individuals listed used the lab for the direct benefit of the award. Only those who charged salary to the award were listed in the Final Project Report. Others received departmental and fellowship support, so were not listed but still worked in support of the award objectives. Several publications credit these individuals, as well as acknowledge funding from this award.
- **Award No.** [REDACTED] – At the time of proposal, the PI was not aware that the GCER (Global Conference on Educational Robotics) would take place in Los Angeles so the [REDACTED] competition was not directly mentioned in the proposal. The Final Project Report described the overall program, which included, but did not specifically mention, the [REDACTED] competition. The charge was allocated between two awards based on the number

of participants attending from each award which is a reasonable and appropriate allocation methodology.

- **Award No. [REDACTED]** – USC disagrees with this finding, as the lunch was to further the research collaboration. It is reasonable for researchers be allowed to participate in research collaboration meetings that directly benefit the award without having to create an agenda or itinerary.
- **Award No. [REDACTED]** – USC disagrees with this finding, as the lunch was to further the research collaboration. It is reasonable for researchers be allowed to participate in research collaboration meetings that directly benefit the award without having to create an agenda or itinerary.
- **Award No. [REDACTED]** – USC does not contest this finding. This stipend was charged to the main account, not the participant support companion account.

See [Appendix B](#) for USC’s complete response.

Auditor’s Response: For these costs that USC disagreed with, our conclusions remain unchanged.

- **Award No. [REDACTED]** – USC disagreed that lunch expenses with research collaborators, totaling \$71, were unreasonably charged to the award. USC did not provide documentation (e.g., agendas, itineraries) to support this lunch was directly related to the award scope and objectives. The explanation provided did not change our conclusion; the report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – USC disagreed that temporary employment expenses, totaling \$1,129, for a summer internship given to a non-USC student should be questioned. USC stated that the student was paid from an REU Supplement open to all undergraduates. Additional supporting documentation was not provided to demonstrate the application was open to all undergraduates. Therefore, the explanation provided did not change our conclusion; the report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – USC did not contest the reasonableness of 1 night of a 3-night hotel stay that was charged to the award for a 1-day conference, totaling \$225 per night. The report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – USC disagreed with the questioned lab usage expenses for individuals, totaling \$6,939, that were charged to the award. Publications crediting individuals not included in the Final Project Report were not provided by USC. The explanation provided did not change our conclusion; the report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – USC disagreed with the questioned parking expenses for a [REDACTED] competition, totaling \$340, which were transferred onto the award. Additional supporting documentation was not provided and the explanation provided did not change our conclusion; the report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – USC disagreed with the questioned lunch meeting expenses, totaling \$230, that were charged to the award 2 days prior to the expiration period. USC did not provide documentation (e.g., agendas, itineraries) to support this lunch was directly related to the award scope and objectives. The additional supporting

documentation was not provided and the explanation provided did not change our conclusion; the report finding and recommendations remain unchanged.

- **Award No. [REDACTED]** – USC disagreed that the lunch expenses with the PI’s research students, totaling \$205, were unreasonably charged to the award. USC did not provide documentation (e.g., agendas, itineraries) to support this lunch was directly related to the award scope and objectives. The explanation provided did not change our conclusion; the report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – USC did not contest that the stipend for a USC research associate professor, totaling \$225, was incorrectly charged to participant support. The report finding and recommendations remain unchanged.

Finding 6 – Untimely Posting of Travel Charges

Table 7. Questioned Cost Breakdown by Award

Award No.	Total Questioned Costs
[REDACTED]	\$ 1,863
[REDACTED]	6,777
Grand Total:	\$ 8,640

Source: Auditor analysis of NSF-provided data from USC during the period October 1, 2011 to September 30, 2014

Travel expenses for two NSF awards, totaling \$8,640, were questioned as unreasonable due to the untimely posting of the charges to the awards. The expenses were questioned based on the following criteria, referenced in [Appendix C](#):

- Reimbursement;
- Reasonable Costs; and
- Allocable Costs.

Per USC Expenditure Policies and Procedures, Section 1.5, “Timely and Accurate Processing,” expenses incurred should be processed and submitted within 60 days of trip or event completion.

Additionally, according to 2 CFR Section 220, Appendix A, Section C.3, to be considered a reasonable cost under a Federal grant, a cost incurred must reflect the action that a “prudent person” would have taken under the circumstances prevailing at the time the decision was made.

Kearney questioned the following travel expenses:

- **Award No. [REDACTED]** – Travel conference charges for a trip to Taiwan, totaling \$1,863, were posted 15 months after the travel end date and eight months after award expiration, even though the conference was related to the award. The untimely submission violates USC’s expenditure policy regarding timely and accurate processing. In addition, the amount incurred for the travel does not reflect the action of a prudent person, as expenses should be submitted in a timely manner to be considered reasonable and allocable to the award.

- **Award No.** [REDACTED] – Travel charges, totaling \$5,629, were posted 11 months after the travel end date and 3 months after award expiration for one transaction. The travel was related to charges for a conference in Japan and charges to visit with a collaborator at a Japanese university, which related to the award. The untimely submission violates USC’s expenditure policy regarding timely and accurate processing. In addition, the amount incurred for the travel does not reflect the action of a prudent person, as expenses should be submitted in a timely manner to be considered reasonable and allocable to the award. In addition, lodging expenses were not supported, and no collaborations were listed in the initial proposal, Annual Project Report, or Final Project Report.

On the same award, conference charges, totaling \$1,148, were posted 4 months after the award end date. When asked to provide a justification or NSF approval for posting the expense untimely, only the award end date was given, which was not a sufficient reason for the charge. The untimely submission violates USC’s expenditure policy regarding timely and accurate processing. In addition, the amount incurred for the conference does not reflect the action of a prudent person, as expenses should be submitted in a timely manner to be considered reasonable and allocable to the award.

Total questioned expenses for this award were \$6,777.

The cause of untimely posting charges to awards may vary on a case-by-case basis. One reason provided for the late posting was due to the PI’s busy schedule. Untimely posting of travel charges to an NSF award may call into question the charge’s reasonableness as it relates to the administrative terms and conditions determined in the original grant agreement. Inappropriate use of grant funds may result in repayment to NSF.

Recommendations: Kearney recommends that NSF’s Director of the Division of Institution and Award Support request that USC:

1. Resolve the \$8,640 in questioned costs and repay the sustained questioned cost amounts, as directed by the NSF RAM Branch.
2. Ensure that charges are posted timely to the award at or around the award expiration. If charges for valid expenses incurred are expected to be invoiced to USC after award expiration and, therefore, reimbursement requested after award expiration, USC should obtain a no-cost grant extension.

Management’s Response:

- **Award No.** [REDACTED] – Although this reimbursement was posted late, the auditors agreed that this travel benefited the project. The submission was not a violation of USC policy, as the policy states that expenses “should be processed” in a timely manner. This policy is in part to ensure that faculty and staff are reimbursed promptly for out-of-pocket costs. That was not an issue here since the reimbursee was responsible for submitting his reimbursement late.

- **Award No. [REDACTED]** – Although this reimbursement was posted late, the auditors agreed that this travel benefited the project. The submission was not a violation of USC policy, as the policy states that expenses “should be processed” in a timely manner. This policy is in part to ensure that faculty and staff are reimbursed promptly for out-of-pocket costs. That was not an issue here since the reimbursee was responsible for submitting his reimbursement late.

See [Appendix B](#) for USC’s complete response.

Auditor’s Response: For these costs that USC disagreed with, our conclusions remain unchanged.

- **Award No. [REDACTED]** – USC disagreed with the questioned costs for the travel conference charges for a trip to Taiwan, totaling \$1,863, that were posted 15 months after the travel end date and 8 months after award expiration. While Kearney agrees that the conference was related to the award, the late submission of the travel invoice violated USC’s expenditure policy regarding timely and accurate processing, as personal funds should be processed and submitted within 60 days. Kearney expects USC to follow up with the traveler on a periodic basis to ensure timeliness of submission in order to be fully reasonable under the award. The report finding and recommendations remain unchanged.
- **Award No. [REDACTED]** – USC disagreed with the questioned expenses for two transactions that were posted untimely for a total of \$6,777. One transaction for travel expenses, totaling \$5,629, was posted 11 months after the travel end date and 3 months after award expiration. The second transaction for conference charges, totaling \$1,148, was posted 4 months after the award end date. While Kearney agrees that the expenses were related to the award, the late submission of the travel invoice violated USC’s expenditure policy regarding timely and accurate processing, as personal funds should be processed and submitted within 60 days. Kearney expects USC to follow up with the traveler on a periodic basis to ensure timeliness of submission in order to be fully reasonable under the award. The report finding and recommendations remain unchanged.

Finding 7 – Unreasonable Payroll Charges

Table 8. Questioned Cost Breakdown by Award

Award No.	Total Questioned Costs
[REDACTED]	\$ 3,750
[REDACTED]	667
Grand Total:	\$ 4,417

Source: Auditor analysis of NSF-provided data from USC during the period October 1, 2011 to September 30, 2014

Payroll expenses for two NSF awards, totaling \$4,417, were questioned as unreasonable. The payroll expenses were questioned based on the following criteria, referenced in [Appendix C](#):

- Reasonableness Costs and
- Allocable Costs.

According to 2 CFR Section 220, Appendix A, Section C.3, to be considered a reasonable cost under a Federal grant, a cost incurred must reflect the action that a “prudent person” would have taken under the circumstances prevailing at the time the decision was made.

Per 2 CFR 220, Appendix A, Section C.4, a cost is allocable to an award if it is incurred solely to advance the work under the award; it benefits both the award and work of the institution in proportions that can be reasonably approximated; or it is necessary to the overall operation of the institution and is assignable in part to sponsored projects.

Kearney questioned the following expenses related to payroll:

- **Award No. [REDACTED]** – A member of USC’s staff received a bonus of \$3,750 while serving as an administrative assistant on the award. USC stated that the reason for this bonus was to “compensate [the Administrative Assistant] for the enhanced responsibilities he assumed on this grant prior to [a] promotion.” The bonus should have not been charged using award funding, as the bonus provided on behalf of the award does not reflect the action of a prudent person.
- **Award No. [REDACTED]** – A teaching assistant charge of \$667 was transferred onto the award 2 months after award expiration. Award expiration was August 31, 2011, and the effort certification document stated work was performed by the assistant during the month of October 2011.

The cause of unreasonable or unallocable payroll charges may vary on a case-by-case basis. One cause is that USC did not closely review OMB Circular A-21 requirements or appropriately support the reasonableness prior to awarding bonuses through the award. Based on discussions and follow-up responses from USC, the University did not review OMB Circular A-21 requirements prior to awarding a bonus with NSF grant funding. Additionally, the University did not review a teaching charge to ensure the work was performed within the award’s period of performance. Incorrectly charging payroll to an award may result in noncompliance with NSF’s administrative terms and conditions determined in the original grant agreement, as well as noncompliance of OMB Circular A-21. Inappropriate use of previously funded awards may result in repayment to NSF.

Recommendations: Kearney recommends that NSF’s Director of the Division of Institution and Award Support request that USC:

1. Resolve the \$4,417 in questioned costs and repay the sustained questioned cost amounts, as directed by the NSF RAM Branch.
2. Resolve any other improper bonus charges made and ensure that payroll charges comport with NSF compliance requirements, as well as OMB Circular A-21 for awards made prior to December 26, 2014, and 2 CFR Part 200, *Uniform Administrative Requirements*,

Cost Principles, and Audit Requirements for Federal Awards, for awards or funding increments made after December 26, 2014. Additionally, USC should ensure only allocable employees may charge to the award.

Management's Response:

- **Award No.** [REDACTED] – USC disagrees with this finding. The employee performed work above and beyond [REDACTED] normal duties and was compensated for this in accordance with USC policy. In addition, OMB Circular A-21, allows supplemental compensation for excess work. Accordingly, this was a reasonable and allowable charge.
- **Award No.** [REDACTED] – USC is not contesting this finding.

See [Appendix B](#) for USC's complete response.

Auditor's Response: For these costs that USC disagreed with, our conclusions remain unchanged.

- **Award No.** [REDACTED] – USC disagreed with the questioned costs for a member of USC's staff to receive a bonus of \$3,750 while serving as an administrative assistant on the award. USC indicates that the staff member performed work above and beyond normal duties and, therefore, the bonus was allowable. USC did not provide sufficient documentation to reflect these actions were specifically and solely related to Award No. [REDACTED]; therefore, the report finding and recommendations remain unchanged.
- **Award No.** [REDACTED] – USC did not contest the finding for the teaching assistant charge of \$667 that was transferred onto the award two months after award expiration. The report finding and recommendations remain unchanged.

Appendix A: Scope and Methodology of the Audit

Scope and Limitations

NSF OIG engaged Kearney to conduct a performance audit of an NSF OIG-selected sample of costs incurred by USC on NSF awards for the period of October 1, 2011, to September 30, 2014. Our audit included assessing the allowability, allocability, and reasonableness of the sample of 250 transactions initially selected by the NSF OIG from a population of 91,815 transactions provided by USC at the request of NSF. As of September 30, 2014, USC received 603 NSF awards, totaling \$324,028,578, during the scope of the audit. Our work required reliance on computer-processed data obtained from USC and the NSF OIG.

Methodology and Work Performed

Kearney conducted this performance audit in accordance with GAGAS for performance audits, as prescribed in the most current version of *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that Kearney plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for the findings and conclusions based on the audit objectives. We believe that the evidence obtained provides a reasonable basis for the findings and conclusions based on the audit objectives. As a basis for our performance audit, the Audit Team used the NSF award documentation; NSF policies; OMB Circular A-21, *Cost Principles for Educational Institutions*; and OMB Circular A-110, *Uniform Administrative Requirements for Grants and Other Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations*, to determine whether costs were in compliance and were allowable, allocable, and reasonable.

To meet the performance audit objectives, Kearney specifically:

- Reviewed NSF policy and OMB guidance;
- Tested a sample of 250 expenditures selected by the NSF OIG for compliance with grant terms and conditions;
- Tested a sample of 55 additional expenditures and 6 cluster³ areas selected by the NSF OIG for compliance with grant terms and conditions based upon results of the 250 expenditures initially tested; and
- Requested and reviewed supporting documentation from USC for each sample item to ensure validity and compliance with grant requirements.

To ensure completeness of the USC data provided for the audit period, NSF OIG analyzed schedules and reconciliations prepared by USC and agreed them to the accounting records. After ensuring completeness, NSF OIG conducted data mining and analytical procedures over the universe of data provided by USC. NSF OIG compiled a judgmental sample list of an initial 250 transactions based on criteria, including, but not limited to, transactions of large dollar amounts;

³ Cluster testing involves groups, or clusters, of transactions and/or awards which can be effectively and efficiently scrutinized together.

duplicate transactions; unusual spending trends; inconsistencies; even dollar amounts; descriptions indicating potentially unallowable costs; frequency; and transactions near award expiration.

Kearney requested supporting documentation for the 250 transactions from USC, and we reviewed the support provided by USC to determine the allowability, allocability, and reasonableness of expenditures. When necessary, we obtained additional support or explanations from USC to determine whether the transactions were valid.

Kearney discussed the preliminary results of our testing with NSF OIG. Based on those results, NSF OIG chose to expand the sample to include an additional 55 judgmental transactions and 6 cluster issue areas. NSF OIG used Kearney's preliminary results and assessed potential cluster issue areas to further expand testing. NSF OIG grouped the cluster issue areas by a set of related transactions or by NSF award into the following expanded testing areas:

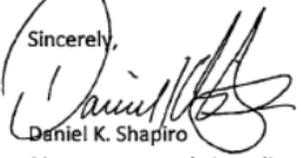
- Reporting reconciliation variances noted between NSF data and data provided by USC;
- IDC application relating to subawards exceeding the \$25,000 threshold;
- IDC application adjustments (Part I and Part II) applied at the end of the award period;
- Participant support rebudgeting (unallowable) over transactions that did not appear to be participant support related; and
- Participant support rebudgeting (unobligated balances) over transactions with participant support costs budgeted were not fully utilized.

In total, Kearney tested 305 judgmental transactions and 6 cluster issue areas and reported the results and findings within the body of this Performance Audit Report. The results of our findings were not projected over the entire award population tested in our audit period.

Work Related to Internal Controls

USC management is responsible for establishing and maintaining effective internal control to help ensure that Federal award funds are used in compliance with laws, regulations, and award terms. In planning and performing our audit, we considered USC's internal control over awards related to financial reporting solely for the purpose of understanding the policies and procedures relevant to the financial reporting and administration of NSF awards in order to evaluate USC's compliance with laws, regulations, and award terms applicable to the items selected by NSF OIG for testing, but not for the purpose of expressing an opinion on the effectiveness of USC's internal control over award financial reporting and administration. Accordingly, we do not express an opinion on the effectiveness of USC's internal control.

Appendix B: Management's Views on Conclusions and Findings

	<p>USC University of Southern California</p>	<p>OFFICE OF COMPLIANCE</p>
<p>September 8, 2017</p>		
<p>Lindsey Jerin Kearney & Company, P.C. 1701 Duke St., Ste. 500 Alexandria, VA 22314</p>		
<p>Dear Lindsey,</p>		
<p>Enclosed you will find USC's responses to NSF's Draft Findings, dated August 23, 2017. As noted in the draft report, these responses will be included in the Final Report as "Appendix B: Management's Views on Conclusions and Findings". At your request, we have not addressed the report's recommended corrective actions on any of the findings, as this will depend on the audit resolution process.</p>		
<p>If you have any questions, please do not hesitate to ask.</p>		
<p>Sincerely,  Daniel K. Shapiro Director, Research Compliance</p>		
<p>University of Southern California 3500 South Figueroa Street, #105, Los Angeles, California 90089-8007 • Tel: 213 740 8258 • Fax: 213 740 9657 • compliance@usc.edu</p>		

Finding 1 – Unreasonable Expenses Near Award Expiration

1. **Award No. [REDACTED]**: A hydraulic pump, totaling \$20,409, was not operational by the end of the award and was installed after the award had expired.

Response: USC disagrees that this was an unreasonable expense. This award was a Major Research Instrumentation Program (MRI) award. As described by NSF, the MRI program serves to increase access to shared scientific and engineering instruments to be used in future research and research training by providing opportunities to acquire major instrumentation that supports the research and research training goals of the university. (https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5260). The objective of MRI grants, therefore, is the acquisition or development of the instrumentation itself, not the use of the instrumentation in support of a separate research objective on the project.

The NSF’s MRI policy does not require that the instrumentation be operational by the end of the award. Rather, the MRI policy provides that “[a]n instrument acquired or developed with support from the MRI program *is expected* to be operational for regular research use by the end of the award period.” (Emphasis added). This expectation is a reflection of the complexity of the MRI program, which contemplates “the acquisition or development of a single, shared-use, state-of-the-art, well-integrated instrument” comprised of an “ensemble of equipment”. (See <https://www.nsf.gov/pubs/2015/nsf15012/nsf15012.pdf>, FAQ #26).

The purpose of this award was to purchase and install robot instrumentation to be used in future research. The equipment purchase questioned in this finding was a hydraulic pump that was used to power the robot. The engagement with the vendor from whom the pump was purchased required it to both deliver and install the pump, which was a highly technical installation. While the pump itself was delivered nearly a year prior to the end of the award, it could not be installed and tested until the robot instrumentation was complete.

Although the PI expected that the instrumentation would be operational prior to the end date of the award, the robot required a year lead time and the company that manufactured it was acquired during the life of the award, which led to a delay in its acquisition. This challenge was explicitly described in the Progress Reports submitted for this award. Once the robot was complete, the pump was promptly installed and tested by the vendor. The vendor was then paid shortly after the end date of the award.

Also, consistent with the purpose of the MRI program, the robot has been used in connection with several NSF awards, including:

- Award No. [REDACTED] (“RI: Small: [REDACTED] [REDACTED]”); Period of Performance: 8/19/10 – 7/31/16
- Award No. [REDACTED] (“MRI-R2: [REDACTED] [REDACTED]”); Period of Performance: 7/8/10 - 9/30/15

- Award No. [REDACTED] (“AIS: [REDACTED] [REDACTED]”); Period of Performance: 9/9/09 – 9/30/17
- Award No. [REDACTED] (“RI: Small: [REDACTED]”); Period of Performance: 9/9/09 – 8/31/15

2. **Award No. [REDACTED]**: A laboratory clean hood, totaling \$6,025, was ordered during the last month of the award period and delivered the month after the award had expired. No further extension requests were made to the NSF after award expiration.

Response: USC disagrees that this was an unreasonable expense. The laboratory “PCR” hood was necessary to perform the last portion of data sample analysis. At the time the PCR hood was ordered, there were no comparable facilities that could provide a sterile clean workspace to complete the work. Using this equipment, an additional component of the proposed work was completed. The PI published 13 manuscripts affiliated with this project and had multiple scientific presentations and education and outreach activities, including manuscripts made possible by the purchase of the PCR hood, as detailed in the final report. Two of these publications resulted from lab work done in the 3 month period after the end of the award.

3. **Award No. [REDACTED]**: DNA analysis services, totaling \$21,899, were completed 3 days prior to award expiration. Performing an analysis 3 days prior to award expiration does not appear as a reasonable time to incur the expenses and complete the project.

Response: USC disagrees that this was an unreasonable expense. This invoice is for services rendered by the USC core genomics facility, which provides DNA sequencing services. As to the provision of services, NSF’s Proposal & Award Policies & Procedures Guide (PAPPG), allows for the payment of services even past the end-date of the award as long as the services were rendered prior to the end date. (See https://www.nsf.gov/pubs/policydocs/pappg17_1/pappg_10.jsp, Chapter X., paragraph c., “Post-End Date Costs”).

The service provided here was to perform DNA sequencing on a series of samples collected from oysters entrained to a tidal cycle and then subsequently held under constant conditions. This was performed prior to the end date of the grant and the experiment and its outcome are described in detail at the bottom of page [REDACTED] in the Final Report to NSF on this award. The experiment was also consistent with one of the aims of the proposal -- “IOS: Causes and consequences of transcriptional oscillations in intertidal mussels”.

This charge may have been questioned by the OIG because it initially believed that it related to an equipment purchase and not a service charge.

4. **Award No. [REDACTED]**: Cell phones from Amazon were purchased for \$2,466 in the last month of the award. Although the University stated that the cell phones were needed for the final testing phase in their follow-up response, a cell phone purchase within the last

month of the award was unreasonable to be the sole benefit of the award. In addition, the purchase does not reflect the action of a prudent person, as they charged the full amount to the award, when the award will only benefit from a portion of the cell phone's useful life. The cell phones were available for less than 1 percent of the award period (roughly 24 of 1,446 days).

Response: USC disagrees that this was an unreasonable expense. The subject matter of the principal investigator's research is mobile computing, which seeks to understand how to design/improve mobile computing devices (smartphones, tablets). As such, the PI regularly purchases cellphones for research-related and software development purposes. These cell phones were purchased in order to finish experiments on the automotive software called CarMA, which runs on a mobile device and collects sensor readings from cars, using which we are able to assess various aspects of car and driver behavior. The CarMA software was tested in experiments conducted in a car club in New Jersey, as explained more fully in the final report for the grant under review.

5. **Award No. [REDACTED]:** A high-precision isotopic piece of equipment was purchased for \$16,272 and received within the last 4 months of the award period. When an older model of the equipment was previously purchased on the award, the purchase of the new equipment to be used at the end of the award was not reasonable. Kearney did not find it reasonable for the equipment purchase to be fully charged to the award, when the same functioning piece of equipment was in use for a majority of the award period already. Specifically, the purchase does not reflect the action of a prudent person, as they charged the full amount to the award, when the award will only benefit from a portion of the equipment's useful life. The equipment was available for less than 7 percent of the award period (roughly 108 out of 1,477 days).

Response: USC disagrees that this was an unreasonable expense. This charge was for the purchase of a high-precision isotopic piece of equipment. In 2010, an earlier version of this equipment was purchased for the grant. The PI was able to purchase this improved and much more precise piece of equipment for a substantial discount, and thereby create a superior piece of equipment. The equipment was used to make necessary measurements for the project, which occurred well before the project end date.

6. **Award No. [REDACTED]:** Lab equipment items, totaling \$41,506, were purchased within 1 month of award expiration, which was not reasonable, given the short amount of time remaining on the award for which the equipment could be utilized. Additional lab equipment items were purchased, totaling \$15,190, and arrived after award expiration. Total questioned expenses for this award are \$56,696.

Response: USC disagrees that this was an unreasonable expense. This award was a Major Research Instrumentation Program (MRI) award. The NSF's MRI policy does not require that the instrumentation be operational by the end of the award. Rather, the MRI policy provides that "[a]n instrument acquired or developed with support from the MRI program *is expected* to be operational for regular research use by the end of the award

period.” (Emphasis added). This expectation is a reflection of the complexity of the MRI program, which contemplates “the acquisition or development of a single, shared-use, state-of-the-art, well-integrated instrument” comprised of an “ensemble of equipment”. (See <https://www.nsf.gov/pubs/2015/nsf15012/nsf15012.pdf>, FAQ #26).

This award was an “Instrument Development for Biological Research (IDBR) award whose purpose was “to develop novel instrumentation” to advance biological research. All of the equipment purchased was necessary to test the novel instrumentation developed under the award in question.

As to the lab equipment items totaling \$41,506, the equipment was delivered and used to acquire and develop the instrumentation prior to end date of the award, consistent with the objective of MRI grants. Delivery in the last month of the award is consistent with this objective – the equipment was delivered and assembled prior to the end date of the award.

As to the lab equipment totaling \$15,190 that was delivered one day after award expiration, the PI has an established reputation in the field and with her vendors, and was able to try out several different units over the last two years of the award on a loaner basis in advance of actually placing an order. In that two year period of testing, the PI obtained data results from one of the pieces of equipment tested, which was subsequently included in the Final Report to NSF and reflected in a publication where the PI expressly acknowledged NSF support from the grant under review (See - “[REDACTED]”, Applied Physics Letters [REDACTED] (12), [REDACTED] (2013)). Proceeding in this fashion allowed for a rigorous evaluation and verification that the unit eventually purchased and currently questioned by the OIG would be of the most benefit for the equipment developed on the project.

As described by NSF, the MRI program serves to increase access to shared scientific and engineering instruments to be used in future research and research training by providing opportunities to acquire major instrumentation that supports the research and research training goals of the university.

(https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5260). The objective of MRI grants, therefore, is the acquisition or development of the instrumentation itself, not the use of the instrumentation in support of a separate research objective on the project. In this case, the instrumentation developed was used in subsequent NSF awards, including:

- Award No. [REDACTED] ([REDACTED] [REDACTED]); Period of Performance: 5/7/10 – 4/30/14.
- Award No. [REDACTED] ([REDACTED] [REDACTED]); Period of Performance: 6.1.14 – 5.31.18.

7. **Award No. [REDACTED]**: Hydrogen was purchased to replenish a laboratory within the last 2 weeks of the award period, totaling \$1,510. Justifiable support was not provided for the purchase near expiration.

Response: USC disagrees that justifiable support was not provided for the purchase near award expiration. The questioned transaction involved the purchase of hydrogen gas, which is indispensable to the operation of the PI's crystal growth equipment, a fundamental tool used in this project up through its end date. The total cost of the hydrogen gas purchased was \$3600. Based on a good faith estimate of the amount of projected use prior to the end date of the project under review, the PI allocated the total expense based on usage between the award under review, a then-active award from another federal sponsor, and non-sponsored funds, as reflected in supporting documentation provided to OIG. Under this allocation, the award in question was charged approximately 32% of the total cost of the hydrogen.

8. **Award No. [REDACTED]**: A computer, totaling \$31,375, was installed 15 days prior to the end of the award. The purchase does not reflect the action of a prudent person, as they charged the full amount to the award, when the award will only benefit from a portion of the computer's useful life. The computer was available for use for less than 2 percent of the award period (roughly 15 out of 852 days).

Response: USC disagrees that this was an unreasonable expense. This equipment was a custom made special upgrade that took a significant amount of time to both build and then to install. Although this equipment was charged 10 days prior to the end of the grant, it was ordered over eight months before the end date of the award. The equipment was in use during its installation for roughly two and a half months prior to the end date of the award, not 15 days. The purchase benefitted this grant because prior equipment used to perform the functions the computer enabled was inoperable and also obsolete.

9. **Award No. [REDACTED]**: Research equipment, totaling \$16,193, was used past the expiration date and taken by the Principal Investigator (PI) to another university. Therefore, this item was not fully allocable to the award. Additionally, the equipment was unreasonably charged to the award 1 month prior to expiration. An additional purchase of supplies 1 month prior to award expiration, totaling \$6,819, was transferred onto the award, which was not reasonable. Total questioned expenses for this award were \$23,012.

Response: USC disagrees that this was an unreasonable expense. This was a fellowship award. The purpose of the award funding mechanism is to develop the next generation of faculty, which it did, as the PI received a faculty appointment at another university. The equipment was used by the PI in [REDACTED] research at USC for an additional 15 months after the end date of the award, and the PI has continued to use the equipment at [REDACTED] new institution. In addition, the cryostat questioned here and its relationship to the aims of the grant was documented by the PI in the Final Report.

10. **Award No.** [REDACTED]: A data collection instrument, totaling \$10,194, was purchased 4 days prior to award expiration. Although USC noted future use of the instrument, the entire purchase was not used on this specific award and, therefore, is not allocable to the award, as it was not received prior to award expiration.

Response: USC disagrees that this expense is not allocable to the award under review. The OIG’s characterization of this award is incorrect. While the data collection instrument was purchased 4 days before the end date of a grant period, the grant was continued through August 2017 and the PI continued to use the instrument during that time period. (See NSF Continuing Grant No. [REDACTED]; Period of Performance: 9.1.13 - 8.31.17).

In addition, one of the explicit purposes of the award under review was to develop novel instrumentation, namely a liquid photoelectronic spectrometer, to support this continuing research effort. This charge was for the purchase of a data acquisition board which was a line item in the equipment budget for this award. The board was necessary for the data collection portion of the spectrometer. This purchase enabled the equipment to work as intended.

11. **Award No.** [REDACTED]: Equipment, totaling \$106,069, was unreasonably charged to the award, because the equipment was received after award expiration. Due to the timing of receipt, the equipment needed to support the scientific and engineering instruments was not operational by the end of the award, which does not comply with NSF’s MRI policy.

Response: USC disagrees that this was an unreasonable expense. This award was a Major Research Instrumentation Program (MRI) award. As described by NSF, the MRI program serves to increase access to shared scientific and engineering instruments to be used in future research and research training by providing opportunities to acquire major instrumentation that supports the research and research training goals of the university. (https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5260). The objective of MRI grants, therefore, is the acquisition or development of the instrumentation itself, not the use of the instrumentation in support of a separate research objective on the project.

The NSF’s MRI policy does not require that the instrumentation be operational by the end of the award. Rather, the MRI policy provides that “[a]n instrument acquired or developed with support from the MRI program *is expected* to be operational for regular research use by the end of the award period.” (Emphasis added). This expectation is a reflection of the complexity of the MRI program, which contemplates “the acquisition or development of a single, shared-use, state-of-the-art, well-integrated instrument” comprised of an “ensemble of equipment”. (See <https://www.nsf.gov/pubs/2015/nsf15012/nsf15012.pdf>, FAQ #26).

In this case, although the PI expected the equipment would be operational before the end date of the award, [REDACTED] later recognized that the questioned equipment would be delivered after the award end date and obtained specific sponsor approval for the late delivery from

the NSF Program Manager. USC provided a copy of this prior approval to the NSF OIG in its prior submission.

As noted in USC's earlier response, this award was made under the American Recovery and Reinvestment Act (ARRA), in connection with which USC contributed \$117,000 in cost sharing.

The purpose of this award was to acquire a networked instrument composed of two complementary Autonomous Underwater Vehicles (AUV's), which support an extensive program of research in robotics, underwater acoustic communication and networking, marine biology, oceanography, and biogeochemistry at the Center for Integrated Networked Aquatic PlatformS (CINAPS).

Despite the late delivery (approved by the sponsor), the objective of this grant was therefore met and the AUV's are in use today on NSF Award No. [REDACTED] (" [REDACTED] [REDACTED]").

12. **Award No.** [REDACTED]: Lab supplies, totaling \$6,434, were ordered in August 2013, and award expiration was September 30, 2013. USC did not provide physical documentation as to when the items were received to evidence that the items were used for this specific award. USC stated that items were still in use for two other awards. As such, the items should not have been fully allocated to this award.

Response: Due to an inadvertent oversight, USC did not provide physical documentation as to when the items were received. We have included such documentation as an attachment to this response.

13. **Award No.** [REDACTED]: A laptop computer purchase, totaling \$1,929, was transferred onto the award approximately 1 month before expiration date. When asked about the use of the laptop, USC noted that the computer would be used for taking research notes and writing papers, which do not appear reasonable, as the computer was unreasonably used for additional activities outside of the award itself. The transfer does not reflect the action of a prudent person, as they charged the full amount to the award, when the award will only benefit from a portion of the computer's useful life. The computer was available for use for less than 4 percent of the award period (roughly 37 out of 911 days).

Response: While the laptop was necessary for a student to support core activities related to the research such as writing papers, taking research notes, and developing and compiling code which can then be installed and run on a smartphone, USC does not contest this finding. However, USC also notes that use of an allocation methodology that derives from the number of remaining open days on an award is not appropriate. If use of this methodology was a requirement, an institution would be required to allocate all award expenses from the first day after the award start date until the end of the award. This is not the applicable standard on allocation.

Finding 2 – Misapplication of Indirect Costs (IDC) on Subawards

Finding: Per the 2 CFR Part 220: 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).” Due to the nature and complexity of the award, USC collaborated with many other subawarded universities. USC divided the subawards into separate purchase orders that each had its own objective and unique scope of work, rather than treating each university as a stand-alone subaward. USC applies the IDC threshold to each subaward purchase order, instead of the aggregate level, thus causing subaward universities to exceed the \$25,000 threshold requirement. Kearney did not receive support to evidence that this purchase order IDC application approach was approved by the NSF Grant Officer.

Response: USC disagrees with this finding. There is no requirement that USC aggregate all subawards made to a single institution and treat them as a single subaward for purposes of applying USC’s F&A rate to the first \$25,000 of direct charges. Rather, as noted in the finding, the prime awardee’s F&A cost rate is to be applied to a modified total direct cost (MTDC) base that includes the first \$25,000 of **each** subaward, regardless of whether the subaward is made to one institution or multiple institutions. *See* 2 CFR §200.68 (“*MTDC* means 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).”)

The Uniform Guidance indicates that an award qualifies as a subaward if it is “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.” 2 CFR §200.92; *see also* 2 CFR §200.330 (providing for the issuance of a subaward “for the purpose of carrying out a portion of a Federal award.”).

As acknowledged in the finding, the questioned cooperative agreement is highly complex \$47.6 million dollar award that involves key contributions from a team of investigators who bring different disciplinary foundations for the intellectual and technical challenges of the research, including at times more than one investigator with different areas of substantive expertise at the same subawardee institution or entity. In addition to the lead investigators at the primary institutions, this project has supported deep biosphere community research at over 40 institutions in nearly 100 projects, including about 45 graduate student and postdoctoral research fellowships.

The specific subawards under review involved the collection of unique samples at different field sites around the world, each of which required the use of different collection, analysis, and reporting activity at each site. Oversight of these efforts required monitoring separate work streams, collecting and analyzing distinct reports, and ensuring that each subproject was performed appropriately from both a scientific and programmatic perspective.

It should also be noted that under NSF’s Cooperative Agreement Financial & Administrative Terms and Conditions (CA-FATC)

(https://www.nsf.gov/pubs/policydocs/cafadc/cafadc_716.pdf), prior approval is not required before implementing the subaward methodology USC employed, as suggested by the OIG. (See CA-FATC, paragraph 3).

Each subaward was therefore executed and administered separately, and the costs that USC incurred for administering two or more subawards to the same institution were the same costs that USC would have incurred for administering two subawards to two different institutions. Accordingly, USC's approach of applying its F&A rate to the first \$25,000 of each subaward was appropriate, regardless of whether there were multiple subawards to the same institution.

Finding 3 – Unsupported or Incorrect Charges to Participant Support

- Award No. [REDACTED]** – Travel reimbursement expenses related to a USC employee attending a conference in Colorado totaled \$1,540 and were incorrectly charged as participant support.

Award No. [REDACTED] – Reimbursement expenses related to a USC employee attending a conference in California totaled \$517 and were incorrectly charged as participant support. Of the \$517 expenses in question, \$46 related to unallowable alcohol expenses charged to the award. USC agreed that these charges were related to a USC employee and that the alcohol charges should not have been charged to the award in any case.

Award No. [REDACTED] – Two expenses relating to travel to Japan were charged to participant support, totaling \$5,828. USC agreed that the charge totaling \$3,661 for a student satellite project was incorrectly charged to participant support. USC stated that the other charge, totaling \$2,167, was an expense related to a non-enrolled student in the summer of 2012 who was not considered a staff or faculty employee. However, Kearney noted that the individual had a USC employee ID number and was paid a research assistant’s salary for the months of April and May 2012. The travel end date for the expenses related to the award was within this timeframe.

Award No. [REDACTED] – Expenses relating to travel to Japan and reimbursed to a USC employee, totaling \$1,663, were incorrectly charged as participant support.

Response: USC is not contesting these findings. While the reimbursements did support the aims of the respective awards, they were inadvertently charged to the participant support companion accounts in error.

- Award No. [REDACTED]** – Payroll expenses were incorrectly charged to participant support, totaling \$20,873. The costs were noted to not be participant support, but evidence to support that conclusion was not provided. Therefore, the participant support expenses in question were not fully supported and appear to be commingled between participant and non-participant support accounts within the same award.

Response: USC is not contesting this finding. At the time, USC was transitioning between systems and the participant support expenses on this account were comingled. In early 2015, USC strengthened existing procedures to ensure that separate companion accounts were created for any awards with participant support. Participant support budget and expense would be segregated in the companion account. Non-participant support budget and expense would be on the main grant account. This procedure also enabled identification of participant support costs.

- Award No. [REDACTED]** – A USC employee included herself in a conference meal reimbursement with other participants. The charges related to the USC employee totaled \$69 and were incorrectly charged as participant support.

Response: USC is not contesting this finding. While the reimbursement did support the aims of the award, it was inadvertently charged to the participant support companion account in error.

4. **Award No.** [REDACTED] – Participant support charges, totaling \$8,122, related to speaker fees were unallowable. The charges do not meet the requirements of a participant support charge, as a speaker is neither a participant nor a trainee.

Response: USC does not agree with this finding. These participants were all named in the proposal for supplemental funding to this award. The supplemental proposal was [REDACTED] and was exclusively for participant support. These three speakers were the only participants named and were listed by name in the “Summary of Proposed Work”, the “Justification for Supplemental Funding”, and the “Budget Justification Page”. Accordingly, they were clearly identified as participants in the proposal, which was approved and funded by NSF.

In addition, the amount in question was separately budgeted and charged to a companion account where no indirect charges were applied. As such, USC did not inappropriately burden this charge with indirect costs nor did USC bill the NSF for \$1,675.96 of indirect costs as claimed in this finding.

5. **Award No.** [REDACTED] – A reimbursement expense, totaling \$11,293, for a USC employee to travel to [REDACTED] for a special study was incorrectly charged to participant support.

Response: USC is not contesting the directly charged portion of this finding of \$6,971.25. However, the amount in question was separately budgeted and charged to a companion account where no indirect charges were applied. As such, USC did not inappropriately burden this charge with indirect costs nor did USC bill the NSF for \$4,322.18 of indirect costs as claimed in this finding.

6. **Award No.** [REDACTED] – Three expenses, totaling \$5,277, related to travel reimbursement for USC employees to attend a workshop in Washington, D.C. were incorrectly charged as participant support.

Response: USC is not contesting this finding. While the reimbursement did support the aims of the award, it was inadvertently charged to the participant support companion account in error.

Finding 4 – Unreasonable, Unallowable, or Unsupported Travel Costs

1. **Award No.** [REDACTED] – Travel expenses, totaling \$12,671, related to an [REDACTED] car rental, and travel to and/or from [REDACTED] University, [REDACTED], and [REDACTED], were unallowable. USC agreed that these expenses should not have been charged to the award and will repay the funds to NSF.

Response: USC is not contesting this finding.

2. **Award No.** [REDACTED] – PI travel expenses to a conference in Germany, with a separate trip to collaborate at a university in [REDACTED], were charged to the award, totaling \$3,729. USC stated that the PI’s collaboration “focused on the analysis of primitive equations of the atmosphere, consistent with the research aims of the grant under review.” The separate trip to [REDACTED] is questioned for reasonableness, as USC’s response does not provide enough evidence showing the amount incurred for the [REDACTED] travel reflects the action of a prudent person, and the [REDACTED] collaboration was not listed within the award’s Annual or Final Project Report. In addition, the Final Project Report states that no international collaboration occurred for the PI.

Response: USC disagrees with this finding. The PI used the General Services Administration (GSA) approved per diem rates for Paris and per diem reimbursement is an approved form of travel reimbursement per OMB Circular A-21 and USC Travel Policy. Furthermore, the PI did not claim per diem for the two weekend days he was in [REDACTED] since [REDACTED] was not providing services benefiting the grant on those days.

The PI did budget for international travel in [REDACTED] proposal which was approved and awarded by the NSF. In addition, [REDACTED] listed travel to [REDACTED] in the Final Project Report. [REDACTED] chose not to identify any international collaboration in the Final Project Report because [REDACTED] and his [REDACTED] collaborator had not successfully solved the problem they were working on.

3. **Award No.** [REDACTED] – The PI traveled to [REDACTED], and [REDACTED] from January 2013 through August 2013 to collaborate with universities. The travel expenses for one trip totaled \$13,831, and the collaborations were not included in the initial NSF proposal submitted. This trip was not mentioned in the award proposal for an 8-month travel period. As the PI returned early (July), another flight home was purchased and charged to the award. The original round trip flight was not used and was not refundable. An additional trip to [REDACTED] totaling \$3,448, charged to the award for further collaborations was questioned. Based on supporting documentation provided, only certain costs were charged to the grant (i.e., airfare, car rental, and a 1-night stay in a hotel). USC stated that the purpose of this trip was to collaborate with professors and work on joint publications; however, the documentary evidence provided was not sufficient to support this and the trip was not mentioned in the Annual or Final Project Report. Because this specific travel was not included in the budget and the total travel exceeded the budgeted amount, the aforementioned travel booked does not reflect the action of a prudent person. Additionally, there is no documented evidence of

how this trip directly benefitted the award; therefore, Kearney questioned these travel charges. Total questioned expenses for this award were \$17,279.

Response: USC disagrees with this finding. This trip was mentioned in the Final Project Report for Award [REDACTED] in the International Travel Section, “International Travel: Yes, [REDACTED] - 0 years, 6 months, 7 days”.

In an earlier response, the PI provided a detailed itinerary documenting his collaborations and noting two papers that resulted from this collaborative trip. The papers cited this award and the continuation award, [REDACTED]. The papers also included and acknowledged [REDACTED] collaborators in [REDACTED]. The itinerary and these two papers both document the direct benefit of this trip to the award.

In terms of the flight charged, the research was completed ahead of schedule but it would have cost more to change the flight return date than to buy a second one way ticket.

4. **Award No.** [REDACTED] – PI travel expenses, totaling \$6,520, were unreasonably charged to the award. The expenses related to a conference in Massachusetts to publish research results. The PI had to travel from [REDACTED] to attend the conference in Massachusetts; however, publishing the results could have been achieved in other ways, such as through a publication, and international travel was not considered prudent. Travel was not budgeted in the original proposal, but 33 percent of the award budget was rebudgeted for travel. Travel should have been considered within the original budget if the PI planned to publish results at a conference outside of [REDACTED].

Response: It appears that this travel was found unreasonable because the trip was not originally budgeted in the award proposal. However, under the Federal Demonstration Partnership (FDP), of which NSF is a member, universities are authorized to rebudget for travel without advance approval.

Finding 5 – Unreasonable or Unallocable General Expense Charges

1. **Award No.** [REDACTED] – Lunch expenses with research collaborators, totaling \$71, were unreasonably charged to the award. No agenda or itinerary was provided to support that the meeting benefitted this specific award.

Response: USC disagrees with this finding as the lunch was to further the research collaboration. It is reasonable for researchers be allowed to participate in research collaboration meetings that directly benefit the award without having to create an agenda or itinerary.

2. **Award No.** [REDACTED] – Temporary employment expenses, totaling \$1,129, for a summer internship was given to a non-USC student. Kearney questioned the reasonableness, as a USC student could have performed these tasks. USC did not provide evidence that they consulted its Human Resources Office prior to hiring a temporary employee to perform the work. Additionally, the Annual and Final Project Reports did not support that the individual performed work directly benefitting the award.

Response: USC disagrees with this finding. This student was paid from a Research Experiences for Undergraduates (REU) Supplement. REU Supplements are open to application by undergraduate students from any university with the only stipulation that students must be citizens or permanent residents of the US or its territories (<https://www.nsf.gov/crssprgm/reu/>). NSF does not restrict REU educational opportunities to students enrolled at the awardee institution. In addition, this student worked on projects benefiting the grant.

3. **Award No.** [REDACTED] – A 3-night hotel stay was charged to the award for a 1-day conference, totaling \$225 per night. Kearney determined the charges for the night before the conference and the night of the conference were reasonable; however, we questioned the reasonableness of the additional 1 night's stay, as USC was unable to provide any type of justification for the extended stay.

Response: USC is not contesting this finding.

4. **Award No.** [REDACTED] – Lab usage expenses for individuals, totaling \$6,939, were charged to the award. These individuals were not mentioned in the Final Project Report. Other individuals on the invoice were listed as people who worked on the grant in the Final Project Report. Since the list of individuals included within the Final Project Report were inconsistent with the lab usage invoice charges, Kearney questioned whether the individuals used the lab for the direct benefit of the award.

Response: All individuals listed used the lab for the direct benefit of the award. Only those who charged salary to the award were listed in the Final Project Report. Others received departmental and fellowship support so were not listed but still worked in support of the

award objectives. Several publications credit these individuals as well as acknowledge funding from this award.

5. **Award No. [REDACTED]** – Parking expenses for a [REDACTED] competition, totaling \$340, were transferred onto the award. The original charges were made to NSF Award No. [REDACTED], which directly relates to the [REDACTED] competition. USC stated that these charges were used to support participant middle school teachers who served as mentors for the student participants in the [REDACTED] competition. The transaction under review transferred the parking charges for teacher participants in the [REDACTED] competition event at USC. However, the expenses were transferred to NSF Award No. [REDACTED], where the [REDACTED] competition is not directly mentioned. The award originally charged, Award No. [REDACTED], does mention the Botball event. The same PI is in charge of both of these awards. Kearney questioned the allocability of the transfer due to the incorrect award account being charged.

Response: At the time of proposal of Award No. [REDACTED], the PI was not aware that the GCER (Global Conference on Educational Robotics) would take place in Los Angeles so the [REDACTED] competition was not directly mentioned in the proposal. Although not mentioned specifically, the Final Project Report described the overall program, which included the [REDACTED] competition. The charge was allocated between the two awards based on the number of participants attending from each award which is a reasonable and appropriate allocation methodology.

6. **Award No. [REDACTED]** – Lunch meeting expenses, totaling \$230, were charged to the award 2 days prior to the expiration period. No agenda or itinerary was provided to support that the meeting benefitted this specific award.

Response: USC disagrees with this finding as the lunch was to further the research collaboration. It is reasonable for researchers be allowed to participate in research collaboration meetings that directly benefit the award without having to create an agenda or itinerary.

7. **Award No. [REDACTED]** – Lunch expenses with the PI's research students, totaling \$205, were unreasonably charged to the award. No agenda or itinerary was provided to support that the meeting benefitted this specific award.

Response: USC disagrees with this finding as the lunch was to further the research collaboration. It is reasonable for researchers be allowed to participate in research collaboration meetings that directly benefit the award without having to create an agenda or itinerary.

8. **Award No. [REDACTED]** – A stipend for a USC research associate professor, totaling \$225, was incorrectly charged to participant support. USC agreed that these expenses should not have been charged to the award and stated the funds will be repaid to NSF.

Response: USC does not contest this finding. This stipend was charged to the main account, not the participant support companion account.

Finding 6 – Untimely Posting of Travel Charges

1. **Award No. [REDACTED]** – Travel conference charges for a trip to Taiwan, totaling \$1,863, were posted 15 months after the travel end date and eight months after award expiration, even though the conference was related to the award. The untimely submission violates USC’s Expenditure policy regarding timely and accurate processing. In addition, the amount incurred for the travel does not reflect the action of a prudent person, as expenses should be submitted in a timely manner to be considered reasonable and allocable to the award.

Response: Although this reimbursement was posted late, the auditors agreed that this travel benefited the project. The submission was not a violation of USC policy as the policy states that expenses “should be processed” in a timely manner. This policy is in part to ensure that faculty and staff are reimbursed promptly for out of pocket costs. That was not an issue here since the reimbursee was responsible for submitting his reimbursement late.

2. **Award No. [REDACTED]** – Travel charges, totaling \$5,629, were posted 11 months after the travel end date and 3 months after award expiration for one transaction. The travel was related to charges for a conference in Japan and charges to visit with a collaborator at a Japanese university, which related to the award. The untimely submission violates USC’s Expenditure policy regarding timely and accurate processing. In addition, the amount incurred for the travel does not reflect the action of a prudent person, as expenses should be submitted in a timely manner to be considered reasonable and allocable to the award. In addition, lodging expenses were not supported, and no collaborations were listed in the initial proposal, Annual, or Final Project Reports.

On the same award, conference charges, totaling \$1,148, were posted 4 months after the award end date. When asked to provide a justification or NSF approval for posting the expense untimely, only the award end date was given, which was not a sufficient reason for the charge. The untimely submission violates USC’s Expenditure policy regarding timely and accurate processing. In addition, the amount incurred for the conference does not reflect the action of a prudent person, as expenses should be submitted in a timely manner to be considered reasonable and allocable to the award.

Total questioned expenses for this award were \$6,777.

Response: Although this reimbursement was posted late, the auditors agreed that this travel benefited the project. The submission was not a violation of USC policy as the policy states that expenses “should be processed” in a timely manner. This policy is in part to ensure that faculty and staff are reimbursed promptly for out of pocket costs. That was not an issue here since the reimbursee was responsible for submitting his reimbursement late.

Finding 7 – Unreasonable Payroll Charges

1. **Award No. [REDACTED]** – A member of USC’s staff received a bonus of \$3,750 while serving as an administrative assistant on the award. USC stated that the reason for this bonus was to “compensate [the Administrative Assistant] for the enhanced responsibilities he assumed on this grant prior to [a] promotion.” The bonus should have not been charged using award funding, as the bonus provided on behalf of the award does not reflect the action of a prudent person.

Response: USC disagrees with this finding. The employee performed work above and beyond his normal duties and was compensated for this in accordance with USC policy. In addition, OMB Circular A-21, Section J.10 allows supplemental compensation for excess work. The section reads:

Incidental work (that in excess of normal for the individual), for which supplemental compensation is paid by an institution under institutional policy, need not be included in the payroll distribution systems described below, provided such work and compensation are separately identified and documented in the financial management system of the institution.

Accordingly, this was a reasonable and allowable charge,

2. **Award No. [REDACTED]** – A teaching assistant charge of \$667 was transferred onto the award 2 months after award expiration. Award expiration was August 31, 2011, and the effort certification document stated work was performed by the assistant during the month of October 2011.

Response: USC is not contesting this finding.

Appendix C: Criteria

Reasonable Costs	
Reference	Description
<p>OMB Circular A-21, App. A, Section C.3.: “Reasonable costs”</p>	<p>“A cost may be considered reasonable if the nature of the goods or services acquired or applied, and the amount involved therefore, reflect the action that a prudent person would have taken under the circumstances prevailing at the time the decision to incur the cost was made. Major considerations involved in the determination of the reasonableness of a cost are: whether or not the cost is of a type generally recognized as necessary for the operation of the institution or the performance of the sponsored agreement; the restraints or requirements imposed by such factors as arm’s length bargaining, Federal and State laws and regulations, and sponsored agreement terms and conditions; whether or not the individuals concerned acted with due prudence in the circumstances, considering their responsibilities to the institution, its employees, its students, the Federal Government, and the public at large; and, the extent to which the actions taken with respect to the incurrence of the cost are consistent with established institutional policies and practices applicable to the work of the institution generally, including sponsored agreements.”</p>
Allocable Costs	
Reference	Description
<p>OMB Circular A-21, App. A, Section C.4.a, “Allocable costs”</p>	<p>“A cost is allocable to a particular cost objective (i.e., a specific function, project, sponsored agreement, department, or the like) if the goods or services involved are chargeable or assignable to such cost objective in accordance with relative benefits received or other equitable relationship. Subject to the foregoing, a cost is allocable to a sponsored agreement if it is incurred solely to advance the work under the sponsored agreement; it benefits both the sponsored agreement and other work of the institution, in proportions that can be approximated through use of reasonable methods, or it is necessary to the overall operation of the institution and, in light of the principles provided in this [Circular], is deemed to be assignable in part to sponsored projects. Where the purchase of equipment or other capital items is specifically authorized under a sponsored agreement, the amounts thus authorized for such purchases are assignable to the sponsored agreement regardless of the use that may subsequently be made of the equipment or other capital items involved.”</p>

Changes in Objectives of Scope	
Reference	Description
<p><i>NSF Award and Administration Guide (AAG), Chapter II, Section B.1.a: “Changes in Objectives or Scope”</i></p>	<p>“Neither the phenomena under study nor the objectives of the project stated in the proposal or agreed modifications thereto should be changed without prior NSF approval. Such changes should be proposed electronically via use of NSF’s electronic systems to the cognizant NSF Program Officer by the PI [Principal Investigator]/PD. If approved by NSF, the Grants and Agreements Officer will amend the grant. Prior NSF approval also is required for any change to the Facilities, Equipment, and Other Resources section of the approved proposal that would constitute a change in objective or scope.”</p>
Post-End Date Costs	
Reference	Description
<p>NSF AAG, Chapter V, Section A.2.c: “Post-Expiration Costs”</p>	<p>“NSF funds may not be expended subsequent to the expiration date of the grant, except to liquidate valid commitments that were made on or before the expiration date. For example, commitment of project funds is valid when specialized (research) equipment is ordered well in advance of the expiration date but where, due to unusual or unforeseen circumstances, delivery of such equipment is delayed beyond the expiration date. The costs of equipment ordered after the expiration date, however, may not be charged to the project.”</p>
Participant Support Costs	
Reference	Description
<p>NSF AAG, Chapter V, Section 8.a, “Participant Support Costs”</p>	<p>“(i) Participant support costs are direct costs for items such as stipends or subsistence allowances, travel allowances and registration fees paid to or on behalf of participants or trainees (but not employees) in connection with meetings, conferences, symposia or training projects. For some educational projects conducted at local school districts, however, the participants being trained are employees. In such cases, the costs must be classified as participant support if payment is made through a stipend or training allowance method. The school district must have an accounting mechanism in place (i.e., sub-account code) to differentiate between regular salary and stipend payments.</p> <p>(ii) Funds provided for participant support may not be used by grantees for other categories of expense without the specific prior written approval of the cognizant NSF Program Officer. Therefore, awardee organizations must account for participant support costs separately.”</p>

Major Research Instrumentation (MRI)	
Reference	Description
NSF MRI policy: NSF 09-502, <i>MRI Program Solicitation for Instrument Development and Acquisition</i>	“Instruments are expected to be operational for regular research use by the end of the award period.”
Exclusions of Some Costs from Indirect Costs Recovery Calculations	
Reference	Description
NSF Indirect Cost Rates policy statement	<p>“The Federal government in general, and NSF specifically, does not permit indirect costs to be recovered on certain types of costs. Commonly excluded costs include:</p> <ul style="list-style-type: none"> • Equipment and capital expenditures • The portion of subawards or subcontracts that exceed \$25,000 • Participant support costs.”
Modified Total Direct Cost (MTDC)	
Reference	Description
2 CFR Part 220, App. A, Section G.2., “Determination and Application of F&A Cost Rate or Rates”	“F&A costs shall be distributed to applicable sponsored agreements and other benefiting activities within each major function (see Section B.1) on the basis of [MTDC], consisting 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 and tuition remission, rental costs, scholarships, and fellowships as well as the portion of each subgrant and subcontract in excess of \$25,000 shall be excluded from modified total direct costs.”
Reimbursement	
Reference	Description
USC Expenditure Policies and Procedures, Section 1.5, “Timely and Accurate Processing”	“REIMBURSEMENTS – For reimbursements to individuals who used personal funds to pay for university expenses, timely processing is important in order to avoid financial hardship to an employee. Expenses incurred using personal forms of payment should be processed and submitted to Disbursement Control and Accounts Payable within 60 days of trip or event completion.”

Non-University Employees	
Reference	Description
USC Non-University Employee policy	<p>“EMPLOYEES OF A TEMPORARY AGENCY are not university employees and are not eligible to receive university benefits. Before a department may engage a temporary employee, the department must consult with their Human Resources office to confirm that the assignment cannot be filled by a university employee in a regular full-time or part-time, fixed-term, per diem, resource or student employee status paid on USC payroll.”</p>



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