




National Science Foundation • Office of Inspector General
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MEMORANDUM

Date: February 11, 2016

To: Dale Bell
Director, Division of Institution and Award Support

Jamie French
Acting Director, Division of Grants and Agreements

From: Dr. Brett M. Baker 
Assistant Inspector General for Audit

Subject: Audit Report No. 16-1-004
University of Washington

This memo transmits the WithumSmith+Brown (WSB) report for the audit of costs totaling \$296 million charged by University of Washington (UW) to its sponsored agreements with NSF during the period April 1, 2010 and ending March 31, 2013. The audit objectives were to: (1) identify and report on instances of unallowable, unallocable, and unreasonable costs; (2) identify and report on instances of noncompliance with regulations, Federal financial assistance requirements, and the provisions of the NSF award agreements related to the transactions selected; and to (3) determine the reasonableness, accuracy and timeliness of the awardee's American Recovery and Reinvestment Act of 2009 (ARRA) quarterly reporting, including reporting the jobs created under ARRA and grant expenditures for the two most recent quarters.

The auditors determined that costs UW charged to its NSF sponsored agreements did not always comply with applicable Federal and NSF award requirements. The auditors questioned \$ 2,003,109 of costs claimed on NSF awards. Specifically, the auditors noted \$1,824,117 in senior personnel salary charges that exceeded NSF's two-month limit; \$122,893 in unreasonable equipment, materials, and supplies expenses; \$36,240 in unsupportable and unallocable expenses; \$8,821 in unreasonable and unallowable expenses; \$6,648 in purchases before the award effective date; \$2,650 in unallowable meal expenditures; and \$1,740 in travel after the award expiration. These questioned costs resulted in seven areas identified where UW controls could be improved to ensure compliance with laws and regulations.

The auditors found that UW properly accounted for and segregated NSF ARRA-funded awards in the accounting system. Additionally, the ARRA reports were reasonable, accurate, and timely. For the quarters ending December 31, 2012 and March 31, 2013, expenditures and jobs creation were verified without exception. The allowability of costs reported for these awards were tested in conjunction with the other NSF awards. The auditors questioned \$253,669 (of the \$2,003,109 in

total questioned costs) on 14 ARRA awards with expenditures related to senior personnel that exceeded the NSF two-month salary limit.

UW, in its response dated November 25, 2015, reviewed and agreed with the facts for \$71,071 in questioned costs: 1) \$41,344 in unreasonable equipment, materials and supplies charges; 2) \$12,868 in unsupportable and unallocable expenses; 3) \$5,821 in unreasonable or unallowable expenses; 4) \$6,648 in purchases before award effective date; 5) \$2,650 in unallowable meal expenditures; and 6) \$1,740 in travel after award expiration. UW did not agree with \$1,932,038 in questioned costs: 1) \$1,824,117 in salary charges that exceeded NSF limits on senior salary; 2) \$81,549 in unreasonable equipment, materials and supplies charges; 3) \$23,372 in unsupportable and unallocable expenses; and 4) \$3,000 in unreasonable or unallowable expenses. UW's response is described after the findings and recommendations and is included in its entirety in Appendix A.

Appendix C contains a detailed summary of the costs that were questioned. Additional information concerning the questioned items was provided separately by the OIG to the Division of Institution and Award Support, Cost Analysis and Audit Resolution Branch. Please coordinate with our office during the six month resolution period, as specified by OMB Circular A-50, to develop a mutually agreeable resolution of the audit findings. Also, the findings should not be closed until NSF determines that all recommendations have been adequately addressed and the proposed corrective actions have been satisfactorily implemented.

OIG Oversight of Audit

To fulfill our responsibilities under generally accepted government auditing standards, the Office of Inspector General:

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

WSB is responsible for the attached auditor's report on UW and the conclusions expressed in the report. We do not express any opinion on the conclusions presented in WSB's audit report.

We thank your staff for the assistance that was extended to our auditors during this audit. If you have any questions regarding this report, please contact Keith Nackerud at 303-844-5745.

Attachment

cc: Alex Wynnyk, Branch Chief, CAAR
Rochelle Ray, Team Leader, CAAR
Michael Van Woert, Executive Officer, NSB
Ruth David, Audit & Oversight Committee Chairperson, NSB
Christina Sarris, Assistant General Counsel, OD
Kaitlin McDonald, Program Analyst, OD



**University of Washington
Audit of Incurred Costs for
National Science Foundation Awards
For the Period April 1, 2010 to March 31, 2013**

BE IN A POSITION OF STRENGTHSM

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ACRONYMS

AAG	Award & Administration Guide
ARRA	American Reinvestment and Recovery Act of 2009
CFR	Code of Federal Regulation
DIAS	Division of Institution and Award Support
FAQ	Frequently Asked Question
FFR	Federal Financial Report
IPA	Intergovernmental Personnel Act
NSF	National Science Foundation
OIG	Office of Inspector General
OMB	Office of Management and Budget
PI	Principal Investigator
UW	University of Washington

Independent Auditors' Report

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950 (P.L. 810-507). Its mission is “to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense.” NSF is also committed to ensuring an adequate supply of the Nation’s scientists, engineers, and science educators. 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. University of Washington (UW) is an NSF grant recipient.

Founded in 1861, UW is one of the oldest public universities on the west coast currently serving more than 92,000 students annually. UW has tripled their research funding over the last 20 years, and in fiscal year 2013 received \$1.238 billion in sponsored research funds. Of the total \$1.238 billion, NSF was the second largest contributor at \$144 million. Because UW is one of the largest recipients of NSF award dollars, NSF-OIG selected UW for audit.

WithumSmith+Brown, under contract with the NSF-OIG, audited the costs claimed by UW to NSF for the period beginning April 1, 2010 and ending March 31, 2013. Our audit objectives were to: 1) identify and report on instances of unallowable, unallocable, and unreasonable costs; 2) identify and report on instances of noncompliance with regulations, federal financial assistance requirements, and the provisions of the NSF award agreements related to the transactions selected; and to 3) determine the reasonableness, accuracy and timeliness of the awardee’s American Recovery and Reinvestment Act of 2009 (ARRA) quarterly reporting, including reporting the jobs created under ARRA and grant expenditures for the two most recent quarters.

We conducted this performance audit in accordance with generally accepted government auditing standards which require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Our objectives, scope, methodology, and criteria are more fully detailed in Appendix B.

Results in Brief

To aid in determining reasonableness, allowability, and allocability of costs, we obtained from UW all awards for which costs were reported to NSF during the period of April 1, 2010, through March 31, 2013. This provided an audit universe of approximately \$296 million, in more than 731,000 transactions, across 1,207 individual NSF awards.

Of the \$296 million in the universe, our audit questioned \$2,003,109 of costs claimed on 140 NSF awards because UW did not comply with federal and NSF award requirements. Specifically, we noted: \$1,824,117 in senior personnel salary charges that exceeded NSF's two-month limit; \$122,893 in unreasonable equipment, materials, and supplies expenses; \$36,240 in unsupported and unallocable expenses; \$8,821 in unreasonable and unallowable expenses; \$6,648 in purchases before the award effective date; \$2,650 in unallowable meal expenditures; and \$1,740 in travel after the award expiration. These questioned costs resulted in seven areas identified where UW controls could be improved to ensure compliance with laws and regulations.

The universe of NSF ARRA-funded awards included approximately \$31 million of expenditures, in more than 77,000 transactions, across 78 NSF awards. Our review found that UW properly accounted for and segregated NSF ARRA-funded awards in the accounting system. Additionally, the ARRA reports were reasonable, accurate, and timely. For the quarters ending December 31, 2012 and March 31, 2013, expenditures and jobs creation were verified without exception. The allowability of costs reported for these awards were tested in conjunction with the other NSF awards. We questioned \$253,669 in 14 ARRA awards with expenditures related to senior personnel that exceeded the two-month NSF salary limit.

UW reviewed and agreed with the facts for \$71,071 in questioned costs: 1) \$41,344 in unreasonable equipment, materials and supplies charges; 2) \$12,868 in unsupported and unallocable expenses; 3) \$5,821 in unreasonable or unallowable expenses; 4) \$6,648 in purchases before award effective date; 5) \$2,650 in unallowable meal expenditures; and 6) \$1,740 in travel after award expiration. UW did not agree with \$1,932,038 in questioned costs: 1) \$1,824,117 in salary charges that exceeded NSF limits on senior salary; 2) \$81,549 in unreasonable equipment, materials and supplies charges; 3) \$23,372 in unsupported and unallocable expenses; and 4) \$3,000 in unreasonable or unallowable expenses. The findings are outlined in our report and presented by award in Appendix C. Additional information concerning the questioned items was provided separately by OIG to the Division of Institution and Award Support, Cost Analysis and Audit Resolution Branch.

Findings and Recommendations

Finding 1 – Exceeded NSF Limits on Senior Salary

Our review of the accounting and reporting of NSF senior salary costs revealed that UW does not adequately track/monitor senior personnel costs relative to the NSF two-month salary limit. Our review identified senior personnel whose salary exceeded the NSF two-month salary limit.

Per NSF grant terms and conditions, grantees are fully responsible for the adherence to NSF policies. One such condition relates to senior personnel. Per the NSF Award & Administration Guide (AAG), Chapter V, Allowability of Cost, Section 1, Salaries, Wages, and Fringe Benefits, "NSF normally limits salary compensation for senior project personnel on awards made by the Foundation, to no more than two

months of their regular salary in any one year. This limit includes salary received from all NSF funded grants...any compensation for such personnel in excess of two months must be disclosed in the proposal budget, justified in the budget justification, and must be specifically approved by NSF in the award notice.”

Using data analytics, we extracted employees appearing to exceed the two-month NSF senior salary limitation. We provided the list of potential salary overcharges to UW for review. UW’s Office of Contracts and Grants identified and excluded employees: 1) exempt from the two-month limit; or 2) not senior personnel per the award documentation. UW also reviewed and corrected the salary rates as necessary. After completing their review, UW provided a final list of individuals exceeding the two-month limit totaling [REDACTED], excluding applicable fringe benefits and overhead.

As noted in NSF’s published policy, the salary limit applies to salary received from all NSF funded grants. UW’s calculation excluded certain NSF funded awards because the questioned individual was not considered senior on all the awards. Our calculation included these awards because NSF’s published policy states that the limit applies to salary received from all NSF funded grants. The inclusion increased the total to [REDACTED], apart from applicable fringe benefits and overhead (see Appendix C for detail by award).

	Salary	Fringe Benefit	Overhead	Total Over
\$	[REDACTED]	[REDACTED]	[REDACTED]	\$ 1,824,117

The following schedule shows the breakout of questioned costs by the number of months in excess of the NSF senior salary policy (see Appendix D for detail by instance).

Unallowable Months	Instances Over	Salary	Fringe Benefit	Overhead	Total Over
0 – 0.9	19	\$ [REDACTED]	[REDACTED]	\$ [REDACTED]	\$ 155,393
1 – 1.9	18	[REDACTED]	[REDACTED]	[REDACTED]	386,518
2 – 2.9	10	[REDACTED]	[REDACTED]	[REDACTED]	442,388
3 – 3.9	12	[REDACTED]	[REDACTED]	[REDACTED]	456,827
4 – 4.9	3	[REDACTED]	[REDACTED]	[REDACTED]	201,663
5 – 5.9	2	[REDACTED]	[REDACTED]	[REDACTED]	181,328
	64	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ 1,824,117

The final list of individuals confirmed by UW was examined, and the facts were verified with the award documentation and salary support (see Appendix D for detail by instance).

These overcharges were due to a lack of effective monitoring caused by an over-reliance on rebudgeting authority. As a result, \$1,824,117 in salary, fringe benefits and overhead on 105 NSF awards is questioned. Had UW effectively monitored their senior personnel salary costs, these overcharges would not have occurred. Without a process in place to ensure that senior personnel do not exceed the NSF two-month limit, there is the increased risk that funds may not be spent in accordance with NSF requirements.

UW relied on an informal November 2010 Frequently Asked Questions (FAQ) document on Proposal Preparation and Award Administration which states “NSF did not change the terms and conditions or any

of our post-award prior approval requirements. Therefore, under the normal rebudgeting authority, an awardee could internally approve an increase of salary after an award is made. No prior approval by NSF is necessary.” However, the FAQ document is non-authoritative and contradicts the NSF requirement per the AAG which was in effect during the audit period. The FAQ simply states that awardees can increase salaries after an award is made. It did not waive the existing limit in the AAG; in fact, the FAQ states, “NSF has not changed the terms and conditions or any of our post-award prior approval requirements.” Therefore, we question the \$1,824,117 in overcharges that NSF did not approve.

UW’s administrative and management controls were not adequately designed to facilitate monitoring of senior personnel salary limits which resulted in unallowable costs.

Recommendation 1:

We recommend that the NSF’s Director of the Division of Institution and Award Support (DIAS) address and resolve the following UW recommendations:

- a. Work with NSF to resolve the \$1,824,117 of questioned costs; and
- b. Strengthen the administrative and management controls and processes for senior personnel to ensure NSF salary limits are not exceeded.

Summary of Awardee Response:

UW does not concur with the questioned costs of \$1,824,117 for senior personnel salary. Based on the guidance from the NSF Policy Office, the University determined that the senior personnel salary costs identified in the report were appropriately allocated to NSF awards under institutional post-award rebudgeting authority. UW stated that since at least 2010, NSF has published consistent policy guidance related to senior personnel; and that the language from the FAQ has been incorporated into the December 26, 2014 PAPPG two month salary provision to further reinforce that recipients may rebudget to charge more than two months' salary without NSF prior approval. Additionally, UW stated the NSF Cost Analysis and Audit Resolution Branch of the Division of Institution and Award Support has sustained the position of institutions of higher education on similar audit findings in several other recent audits. UW believes that it has complied with the express guidance provided by NSF and NSF policies with respect to senior personnel salaries and that questioning these costs is not consistent with NSF policy, previous NSF audit resolutions, and related agency guidance in effect during the time of these expenditures. See Appendix A for the complete UW response.

Auditor Comments:

Although UW agreed that these individuals’ salaries exceeded the NSF approved salary limit, their reliance on rebudgeting authority resulted in questioned costs based on the official NSF policy applicable during the audit period. UW interpreted the November 2010 FAQ on Proposal Preparation and Award Administration which states, NSF has not “changed the terms and conditions or any of our post-award prior approval requirements. Therefore, under the normal rebudgeting authority, an awardee can internally approve an increase of salary after an award is made,” to mean the two-month salary limit on senior personnel could be disregarded post award. The FAQ made no mention of the ability to disregard or violate the NSF AAG. Furthermore, informal communication in a FAQ does not supersede the official policy per the AAG. Therefore, the report finding remains as previously stated.

Finding 2 – Unreasonable Equipment, Materials and Supplies Charges

We found that equipment, materials, and supply expenses totaling \$122,893 charged to nineteen NSF awards were not necessary or reasonable in accordance with 2 CFR 220 (OMB Circular A-21).

According to 2 CFR 220, Appendix A, Section C, to be allowable for a federal grant, a cost must be allocable to the federal award and be necessary and reasonable for the administration and performance of the award. Furthermore, Section C.3 provides that a reasonable cost is one that a “prudent person” would have incurred under similar circumstances.

2 CFR 220, Appendix A, Section C.4 states that 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.... The recipient institution is responsible for ensuring that costs charged to a sponsored agreement are allowable, allocable, and reasonable under these cost principles.” 2 CFR 220, Appendix A, Section A states that “the accounting practices of individual colleges and universities must support the accumulation of costs as required by the principles, and must provide for adequate documentation to support costs charged to sponsored agreements.”

Equipment Purchases

We questioned \$61,223 on eight awards for equipment purchased near the award expiration that did not appear to benefit the award or that did not appear necessary considering the limited time remaining on the awards.

- \$16,424 for the purchase of a laser system. UW received a laser system on July 30, 2012 costing \$34,980 and was originally charged equally to NSF Awards 0904004 and 1067054. Award 0904004 expired on August 31, 2012 and Award 1067054 expired August 31, 2014. The Principal Investigator (PI) stated that the laser system is still being used on Award 1067054. After the Award expiration, the PI removed \$1,066 of the \$17,490 total amount from Award 0904004, therefore we are only questioning the remaining \$16,424.

Per the PI, the laser system was built for the purpose stated in Award 0923417 which expired August 31, 2012, but no cost was allocated to this award. Based on the PI explanation and the date of purchase, the laser system did not benefit Award 0904004 and was not reasonable since it was only available for 3 percent of the NSF grant life (32 out of 1,095 days);

- \$9,057 for a conductivity, temperature and depth instrument purchased on September 13, 2010 on a four-year award that expired on September 30, 2010. The equipment was only available for 1 percent of the grant life (17 out of 1,460 days). UW explained that the purchase was to replace an instrument that was lost at sea and was needed to continue research after the NSF grant expiration. UW has agreed to transfer the costs from the award;
- \$7,160 for the purchase of a digitizer received on June 7, 2010 on a five-year award that expired on June 30, 2010. UW stated that the digitizer enabled the building of a firm foundation for a lifetime of contributions to research and education; however, the digitizer was available for less than 1 percent of the NSF grant life (23 out of 1,825 days). UW has agreed to transfer the costs from the award;

- \$6,722 for the purchase of a high-speed video camera. UW received the video camera costing \$26,888 on July 1, 2010 and charged 25 percent of the total cost to a four-year award that expired on August 31, 2010. The PI stated there was an opportunity to share costs with another lab for purchasing the high-speed camera that was superior to an existing one; however, the equipment was only available for 4 percent of the NSF award grant life (61 out of 1,460 days). UW has agreed to transfer the costs from the award;
- \$5,821 for the purchase of an ultrasound detector. The detector was purchased on August 17, 2012 on a five-year award that expired on August 31, 2012. The equipment was available for less than 1 percent of the grant life (14 out of 1,825 days). UW stated that the end of a project does not mean that work stops;
- \$4,736 for the purchase of a temperature control system on July 5, 2011 for an award that expired on August 31, 2011. UW stated that the purchase was made to replace a defective unit; however, the system was only available for 4 percent of the grant life (57 out of 1,445 days);
- \$4,673 for the purchase of an oscillator on July 27, 2012 on a three-year award that expired on August 31, 2012. UW stated the oscillator was needed to develop teaching modules; however, the oscillator was only available for 3 percent of the grant life (35 out of 1,110 days);
- \$3,777 for the purchase of a centrifuge ordered on March 15, 2011 on an award that expired on March 31, 2011. UW stated that the purchase was made to replace a defective centrifuge; however, the equipment was available for less than 1 percent of the grant life (16 out of 2,114 days); and
- \$2,853 for an oscilloscope purchased on June 22, 2011 on an award that expired on August 31, 2011. UW stated that the equipment was on backorder and they had to use a loaner for 6 months until the final product arrived; however, the oscilloscope was available for less than 5 percent of the grant life (70 out of 1,445 days).

Allocation of Equipment Costs

We questioned \$27,935 for purchases of equipment charged to one award. At the end of the grant life, the PI spent over 8 percent of the cumulative award budget on equipment. Although it appears the equipment was used on the NSF award, the allocation of 50 percent of the equipment cost does not appear reasonable considering the limited time remaining on the award; and the methodology for the allocation was not supported.

- \$21,236 for the purchase of a laser system. UW received the laser system costing \$41,850 on September 30, 2011 and charged approximately 50 percent of the total cost to a four-year award that expired on November 30, 2011. The laser system was only available for 4 percent of the grant life (60 out of 1,445 days). Originally, the laser system was charged 100 percent to a non-NSF award, and a journal entry to transfer 50 percent of the cost of the laser system to the NSF award was not made until January 30, 2012, two months after the NSF award expiration; and
- \$6,699 for the purchase of a high-resolution camera and frame grabber. UW ordered the equipment costing \$13,397 on September 27, 2011 and charged 50 percent of the total cost to a four-year award that expired on November 30, 2011. The equipment was only available for 4 percent of the grant life (63 out of 1,445 days). Originally, the equipment was charged 100 percent to a non-NSF award. The journal entry to transfer 50 percent of the cost of the equipment to the NSF award was not made until December 22, 2011, 22 days after the NSF award expiration.

Computer Purchases

We questioned \$21,586 charged to seven awards for general-purpose computers purchased near the award expiration that did not appear to benefit the award or that did not appear necessary considering the limited time remaining on the awards.

- \$4,573 for the purchase of two Mac Book Pro laptop computers near award expiration, on a four-year award that expired on February 28, 2011. One Mac Book Pro was purchased on January 18, 2011, making it available for less than 3 percent of the grant life (41 out of 1,460 days). Another Mac Book Pro was purchased on February 16, 2011 making it available for less than 1 percent of the grant life (12 out of 1,460 days). UW has agreed to transfer the costs from the award;
- \$3,488 for the purchase of a laptop computer and desktop computer on an award that expired on May 31, 2010. The laptop was purchased on May 28, 2010, just 3 days before award expiration. The desktop computer was purchased on May 21, 2010 and delivered on June 2, 2010; the desktop computer was not received until after award expiration. UW has agreed to transfer the costs from the award;
- \$2,901 for the purchase of a Mac Book Air laptop computer and two external drives ordered on July 28, 2011 on an award that expired on August 31, 2011. The computer and external drives were only available for 3 percent of the grant life (34 out of 1,172 days);
- \$2,826 for a Mac Book Pro laptop computer that was purchased on June 23, 2011 on a three-year award that expired on August 31, 2011. The computer was only available for 6 percent of the grant life (69 out of 1,460 days);
- \$2,640 for a Mac Book Pro laptop computer and three-year Apple Care plan purchased on June 15, 2011 on a three-year award that expired on August 31, 2011. The computer was available for 7 percent of the grant life (77 out of 1,095 days);
- \$2,306 for the purchase of an external hard drive received on December 31, 2012, the same day as the award expiration;
- \$1,792 for the purchase of a Mac Book Pro laptop computer on February 9, 2011 on a four-year award that expired on February 28, 2011. The computer was only available for 1 percent of the grant life (19 out of 1,460 days); and
- \$1,060 for the purchase of a computer on February 2, 2011 on a three-year award that expired March 31, 2011. The computer was not received until March 29, 2011, just 2 days before the award expiration. UW has agreed to transfer the costs from the award.

Materials and Supplies

We questioned \$12,149 on five awards for materials and supplies purchased near the award expiration that did not appear to benefit the award or that did not appear necessary considering the limited time remaining the awards.

- \$3,800 for the purchase of supplies received on August 30, 2010 on a four-year award that expired on August 31, 2010. The supplies were available for use on the award for one day. UW has agreed to transfer the costs from the award;
- \$2,245 for the purchase of lab supplies ordered on May 24, 2012 and received June 15, 2012 on a four-year award that expired on May 31, 2012. The supplies were received after the award expired. UW has agreed to transfer the costs from the award;

- \$1,875 for the purchase of lab materials at the end of the award. The PI stated that the materials were purchased at the end of the award to restock supplies used during the award. No documentation was provided to support that the materials purchased were actually used on the NSF award. UW has agreed to transfer the costs from the award;
- \$1,858 for the purchase of lab supplies received on August 26, 2011 on a four-year award that expired on August 31, 2011. The lab supplies were available for less than 1 percent of the grant life (5 out of 1,445 days);
- \$1,364 for the purchase of supplies on August 25, 2011 on a three-year award that expired on August 31, 2011. The supplies were available for less than 1 percent of the grant life (6 out of 1,095 days). UW has agreed to transfer the costs from the award; and
- \$1,007 for the purchase of research books received on August 17, 2011 on a three-year award that expired on August 31, 2011. The books were only available for 1 percent of the grant life (14 out of 1,080).

UW personnel did not adequately review the propriety of these expenditures charged to NSF awards which resulted in unreasonable costs. Without a process in place to ensure the reasonableness of equipment, materials, and supply expenses, there is the increased risk that funds may not be used as required to accomplish the necessary project objectives in accordance with federal and NSF requirements. UW indicated that it has performed corrective actions to remove \$41,344 in unreasonable costs from the award in question leaving \$81,549 remaining unresolved. NSF, during the audit resolution process, should ensure that the awards are credited as appropriate.

Recommendation 2:

We recommend that the NSF's Director of the DIAS address and resolve the following UW recommendations:

- a. Work with NSF to resolve the \$122,893 of questioned costs; and
- b. Strengthen the administrative and management controls and processes for reviewing and approving equipment, materials, and supplies charged to NSF awards.

Summary of Awardee Response:

Equipment Purchases

UW concurs with \$22,939, made up of the following items: 1) \$9,057 for a conductivity, temperature and depth instrument; 2) \$7,160 for the purchase of a digitizer; and 3) \$6,722 for the purchase of a high-speed video camera.

UW does not concur with questioned costs totaling \$38,284, made up of the following: 1) \$16,424 for the purchase of a laser system; 2) \$5,821 for the purchase of an ultrasound detector; 3) \$4,736 for the purchase of a temperature control system; 4) \$4,673 for the purchase of an oscillator; 5) \$3,777 for the purchase of a centrifuge; and 6) \$2,853 for an oscilloscope. Per UW, equipment purchases were necessary to complete the award objectives.

Allocation of Equipment Costs

UW does not concur with the questioned equipment purchases. UW stated the PI used the laser and camera on a set of experiments that were necessary and a key component of the research as planned in the proposal. Per UW, the importance of these experiments in completing the project objectives cannot be made in parallel to the length of time the equipment was available or the time it took to conduct them. UW stated these costs were allocated to benefit the awards using the interrelationship provision in OMB Circular A-21 based on anticipated use on those awards.

Computer Purchases

UW concurs with the following questioned costs totaling \$9,121: \$4,573 for the purchase of two Mac Book Pro laptop computers; \$3,488 for the purchase of a laptop computer and desktop computer; and \$1,060 for the purchase of a computer.

The University does not concur with the following questioned costs totaling \$12,465: \$2,901 for the purchase of a Mac Book Air laptop and two external hard drives; \$2,826 for a Mac Book Pro laptop computer; \$2,640 for a Mac Book Pro laptop computer and three-year Apple Care plan; \$2,306 for the purchase of an external hard drive; and \$1,792 for the purchase of a Mac Book Pro laptop computer. Per UW, the computers were necessary complete the projects for which they were purchased.

Material and Supply Purchases

The University concurs with the following questioned costs totaling \$9,284: \$3,800 for the purchase of supplies; \$2,245 for the purchase of lab supplies; \$1,875 for the purchase of lab materials; and \$1,364 for the purchase of supplies.

The University does not concur with the following questioned costs totaling \$2,865: 1) \$1,858 for the purchase of lab supplies; and 2) 1,007 for the purchase of research books. Per UW, the computers were necessary complete the projects for which they were purchased.

See Appendix A for the complete UW response.

Auditor Comments:

Equipment Purchases

UW's comment related to the \$22,939 is responsive to the issue noted in this finding. Once NSF determines that the recommendation has been adequately addressed and the \$22,239 in questioned costs has been returned, this issue should be closed.

The remaining \$38,284 in equipment purchases were not reasonable or prudent given the limited time remaining on the awards. Therefore, the report finding related to this matter remains as previously stated.

Allocation of Equipment Costs

UW does not concur with questioned costs totaling \$27,935. Per UW, the costs were allocated according to OMB Circular A-21 based on the anticipated use on the awards. We disagree with this conclusion.

The PI spent over 8 percent of the cumulative award budget on equipment in the last 4 percent of the award period. Originally, the high-resolution camera, frame grabber, and laser system was charged 100 percent to a non-NSF award. Journal entries to transfer 50 percent of the costs to the NSF award were not made until after the NSF award expiration and the allocation method was not supported. Therefore, the report finding remains as previously stated.

Computer Purchases

UW's comment related to the \$9,121 is responsive to the issue noted in this finding. Once NSF determines that the recommendation has been adequately addressed and the \$9,121 in questioned costs has been returned, this issue should be closed.

The University does not concur with the following questioned costs totaling \$12,465. Although the purchases may have benefitted the research efforts, given the limited time remaining on the NSF awards, that benefit is greater for future research projects. The \$12,465 expended for the purchase of laptops and external hard drives was not reasonable or prudent considering the limited time remaining on the awards. Therefore, the report finding related to this matter remains as previously stated.

Material and Supply Purchases

UW's comment related to the \$9,284 is responsive to the issues noted in this finding. Once NSF determines that the recommendation has been adequately addressed and the \$9,284 in questioned costs has been returned, this issue should be closed.

The University does not concur with questioned costs totaling \$2,865; however, the purchase of lab supplies and books in the last one percent of the awards was not reasonable or prudent. Therefore, the report finding related to these matters remains as previously stated.

Finding 3 – Unsupportable and Unallocable Transactions

We found \$36,240 of unallocable transactions related to eleven awards which were not in accordance with 2 CFR 220, Appendix A, Section C.4 which states 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...The recipient institution is responsible for ensuring that costs charged to a sponsored agreement are allowable, allocable, and reasonable under these cost principles." Additionally, 2 CFR 220, Appendix A, Section A states that "the accounting practices of individual colleges and universities must support the accumulation of costs as required by the principles, and must provide for adequate documentation to support costs charged to sponsored agreements."

We found that \$23,372 (████████████████████) for a trip to Hawaii was not allocable to two of three of the NSF awards to which it was charged. Per UW, "████████" allocated these costs on the basis of travel funds available in the three awards." This allocation methodology provided by UW is arbitrary and based on convenience, rather than the actual benefit received by each award. We have no way to determine the reasonableness of this methodology. Specifically we noted:

- UW charged \$13,305 for per diem for 125 days in Oahu, Hawaii. Flat rate per diem is to be used for long term stays. When the trip length is between 31-180 days at the same location, 75 percent of the rate is to be used. Based on the flat rate per diem in Oahu during the travel period, the allowable per diem for 125 days was \$10,395. UW overcharged \$2,910 for per diem;
- The trip began April 27, 2011 and ended August 31, 2011 and awards [REDACTED] and [REDACTED] expired August 31, 2011; and
- UW charged 40 percent of the costs to award [REDACTED], 33 percent to award [REDACTED], and 27 percent to award [REDACTED]. A review of the payroll data noted that [REDACTED] charged 100 percent of [REDACTED] time to Award [REDACTED] and none to the other awards during the period of the trip. Per [REDACTED], they used “free research time to work on the NSF award while in Hawaii”, but other than [REDACTED] statement, no documentation was available to support the allocation of the costs to the three awards.

Charges and adjustments to all three awards were as follows:

		04/15/11 ^a	10/18/11 ^b	02/21/12 ^c	Total	% Total
Award #1	61-5991 [REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	\$ [REDACTED]	40%
Award #2	61-7375 [REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	33%
Award #3	62-1387 [REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	27%
Total		\$ [REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	100%

^a Original travel advance

^b Travel Expense Report

^c Adjustment

Due to the lack of adequate support for trip expenses and the lack of adequate support for the allocation to the three grants, the entire amount is questioned.

During our audit we also noted the following unsupported purchase card transactions totaling \$12,868 on eight NSF awards as follows:

- \$6,711 for the transfer of pre-award expenses from one NSF award to another. UW could not provide support for the expenses. UW has taken corrective action to remove the charges from the award;
- \$2,471 for a workshop lunch. UW provided a cost estimate, however, the estimate is not mathematically correct and no receipt was provided to support the actual charges. UW has agreed to transfer the costs from the award;
- \$2,149 for event fees for rental space at a museum and lunch for a committee meeting. UW could not provide adequate documentation to support the charge and has agreed to transfer the costs from the award;
- \$510 for lunch and light snacks during teacher participant daily lab projects. UW was unable to provide the purchase receipt. UW has agreed to transfer the costs from the award;
- \$441 to purchase pottery for the creation of an educational outreach kit. UW could not provide the purchase receipt. UW has agreed to transfer the costs from the award;
- \$260 for the purchase of hard-sided luggage. UW could not locate the receipt, but instead provided a Perjury Statement for Purchases from the purchaser. The statement is not considered

adequate documentation. Furthermore, the purchase occurred in November 2012 and the statement was signed May 2015. UW has agreed to transfer the costs from the award;

- \$223 for the purchase of snacks and drinks. UW could not locate the receipts, however, a Perjury Statement for Purchases was provided. The statement is not considered adequate documentation. Additionally, the purchases occurred in November 2012 and the statement was signed May 2015. UW has agreed to transfer the costs from the award; and
- \$103 for lunch for participants. The receipt provided the purchase total but did not include the itemized detail to enable us to determine whether the charges were allowable. A Perjury Statement for Purchases was obtained at the time of the reimbursement; however, the statement is not considered adequate documentation to support the charges. UW has agreed to transfer the costs from the award.

UW personnel did not adequately review the expenditures charged to the NSF awards which resulted in unsupported and unallocable costs. Without a process in place to ensure costs are supported by adequate documentation and allocable to the award, there is the increased risk that funds may not be used as required to accomplish the necessary project objectives in accordance with federal and NSF requirements. UW indicated that it has performed corrective actions to remove \$12,868 in unsupported costs from the awards in question leaving \$23,372 remaining unresolved. NSF, during the audit resolution process, should ensure that the awards have been credited as appropriate.

Recommendation 3:

We recommend that the NSF's Director of the DIAS address and resolve the following UW recommendations:

- a. Work with NSF to resolve the \$36,240 of questioned costs; and
- b. Strengthen the administrative and management controls and processes for reviewing and approving purchase card transactions charged to NSF awards.

Summary of Awardee Response:

UW concurs with the questioned costs totaling \$12,868 for unsupported purchase card transactions. Although the UW believes these costs benefited the awards to which they were charged, they acknowledge that the purchase receipts could not be located during the audit.

UW does not concur with the questioned costs totaling \$23,372 () which the audit asserts were unallocable to two of the three awards. Per UW, confirmed that the research performed during the trip benefited all three awards and UW stated that the allocation was reviewed at the time the expense posted. UW stated that in allocating the cost across multiple awards, UW applied the principles outlined in OMB Circular A-21 which was in effect at the time of these awards. UW also disagrees with the finding that expenses were not adequately supported. UW believes they have provided documentation to support every expense claimed. University policy does not require to provide documentation in support of per diem, but rather use an established rate.

UW disagrees with the conclusion that the per diem was over-claimed on this award. The finding contends that after 31 days travelers must adhere to a reduced per diem rate of 75 percent, but UW can find no reference to support this in the NSF Grants Policy Manual. UW stated that under NSF and Federal award policies, the University is allowed to comply with its own established travel policies which are

based on the policies of the State of Washington. The UW policy states that departments should review travel status after 90 days and determine whether travel should be moved onto a temporary duty station status, which would invoke a reduced rate.

See Appendix A for the complete UW response.

Auditor Comments:

UW's comment related to the \$12,868 is responsive to the issue noted in this finding. Once NSF determines that the recommendation has been adequately addressed and the \$12,868 in questioned costs has been returned, this issue should be closed.

Due to the lack of adequate support for trip expenses and the lack of adequate support for the allocation to the three grants, the entire amount is questioned. UW charged \$13,305 for per diem for 125 days in Oahu, Hawaii. UW policy states that an assessment of the travel status is required after 90 days to determine whether travel should be moved to temporary duty status, however, we were provided no evidence to support the assessment was ever completed. Therefore, to assess the reasonableness of the per diem charged, we utilized the flat rate per diem for long term stays according to the Defense Travel Management Office. Per the flat rate per diem rules for outside the continental United States, when the trip length is between 31-180 days at the same location, 75 percent of the rate is to be used. Based on the flat rate per diem in Oahu during the travel period, the allowable per diem for 125 days was \$10,395. UW overcharged \$2,910 for per diem. Additionally, per OMB Circular A-21, costs may be allocated on any reasonable basis. UW stated that, [REDACTED] allocated these costs on the basis of travel funds available in the three awards." This allocation methodology provided by UW is arbitrary, based on convenience not the benefit received by each award, not reasonable, and is inconsistent with their current response.

Finding 4 – Unreasonable or Unallowable Transactions

We found \$8,821 charged to five awards for unreasonable or unallowable expenses which were not in accordance with 2 CFR 220.

According to 2 CFR 220, Appendix A, Section J.1.c(4) and J.1.f(3), The purchase of the "promotional items and memorabilia, including models, gifts, and souvenirs" were not specific purchases necessary to meet the requirement of the agreement. These promotional items are therefore unallowable and will be questioned.

According to 2 CFR 220, Appendix A, Section C, to be allowable for a federal grant, a cost must be allocable to the federal award and be necessary and reasonable for the administration and performance of the award. Furthermore, Section C.3 provides that a reasonable cost is one that a "prudent person" would have incurred under similar circumstances.

- \$3,920 for the purchase of promotional items including canvas bags, mini optical mice and custom Snuggies. UW has agreed to transfer the costs from the award;
- \$3,000 for a cash award given to a student for placing first in a competition;
- \$1,179 for the purchase of embroidered Snuggies. UW has agreed to transfer the costs from the award;
- \$684 for the purchase of various items such as cups, flatware, plates and tablecloths. UW has agreed to transfer the costs from the award; and
- \$38 for unallowable interest charges. UW has agreed to transfer the costs from the award.

UW personnel did not adequately review the expenditures charged to the NSF awards which resulted in unreasonable and unallowable costs. Without a process in place to ensure costs are reasonable and allowable, there is the increased risk that funds may not be used as required to accomplish the necessary project objectives in accordance with federal and NSF requirements. UW indicated that it has performed corrective actions to remove \$5,821 in unreasonable and unallowable costs from the awards in question leaving \$3,000 remaining unresolved. NSF, during the audit resolution process, should ensure that the awards have been credited as appropriate.

Recommendation 4:

We recommend that the NSF's Director of the DIAS address and resolve the following UW recommendations:

- a. Work with NSF to resolve the \$8,821 of questioned costs; and
- b. Strengthen the administrative and management controls and processes for reviewing costs to ensure that unallowable promotional items and interest costs are not charged to NSF awards.

Summary of Awardee Response:

The University concurs with the following questioned costs totaling \$5,821; \$5,099 for the purchase of promotional items; \$684 for the purchase of expendable supplies; and \$38 for interest charges.

The University does not concur with the \$3,000 questioned for a cash award given to a student for placing first in a competition. UW stated this expenditure was in direct support of the aims of this NSF award, and the competition for which the award was given directly addressed the need of creating computer programming projects related to broadening participation in computing, particularly to students with disabilities.

See Appendix A for the complete UW response.

Auditor Comments:

UW's comment related to the \$5,821 is responsive to the issue noted in this finding. Once NSF determines that the recommendation has been adequately addressed and the \$5,821 in questioned costs has been returned, this issue should be closed.

The University does not concur with the \$3,000 questioned for a cash award given to a student for placing first in a competition. According to 2 CFR 220, Appendix A, Section C, to be allowable for a federal grant, a cost must be allocable to the federal award and be necessary and reasonable for the administration and performance of the award. Therefore, the report finding related to these matters remains as previously stated.

Finding 5 – Purchases Before Award Effective Date

We question \$6,648 charged to two NSF awards for purchases more than 90 days prior to the award effective date without NSF approval.

Our audit procedures identified a population of three NSF awards with charges occurring more than 90 days prior to the effective date without NSF approval, totaling \$193,252. As a result of our audit inquiry into the matter, UW requested and received approval from NSF for \$186,604 in pre-award costs charged to one award. Therefore, the \$186,604 in pre-award costs will not be questioned.

Per the NSF AAG, Chapter V, Section 2.b, Pre-Award Costs, “(i) Grantees may incur allowable pre-award costs within the 90 day period immediately preceding the effective date of the grant providing: (a) the approval of pre-award spending is made and documented in accordance with the grantee's procedures; and (b) the advanced funding is necessary for the effective and economical conduct of the project. (ii) Pre-award expenditures are made at the grantee's risk. Grantee authority to approve pre-award costs does not impose an obligation on NSF: (1) in the absence of appropriations; (2) if an award is not subsequently made; or (3) if an award is made for a lesser amount than the grantee anticipated. (iii) Requests for pre-award costs for periods exceeding 90 days must be submitted electronically via use of the Notification and Request module in FastLane. Pre-award expenditures prior to funding of an increment within a continuing grant are not subject to this limitation or approval requirement, but are subject to paragraph (ii) above.”

We are questioning pre-award costs related to two NSF awards for purchases more than 90 days prior to the award effective date without NSF approval:

- \$6,547 for a freezer purchased in April 2010 on an award that did not begin until August 1, 2010. NSF approval had not been received; and therefore, the costs are questioned. UW has agreed to transfer the costs from the award; and
- \$101 for an expense transferred to the wrong NSF account resulting in the transaction occurring more than 90 days before the award effective date. UW has agreed to transfer the costs from the award.

The established internal controls were not adequate to prevent the pre-award costs from being charged to the awards, to identify the errors before the final report, or to guarantee the requests to exceed the 90 day period was submitted to NSF. As a result of inadequate internal controls pre-award costs were charged to the NSF awards in violation of NSF's policies. Without adequate controls to ensure costs charged more than 90 days prior to the award expiration have been approved by NSF, there is the increased risk that funds may not be used as required to accomplish the necessary project objectives in accordance with federal and NSF requirements. UW indicated that it has performed corrective actions to remove \$6,648 in unreasonable costs from the awards in question. NSF, during the audit resolution process, should ensure that the awards are credited as appropriate.

Recommendation 5:

We recommend that the NSF's Director of the DIAS address and resolve the following UW recommendations:

- a. Work with NSF to resolve the \$6,648 of questioned costs; and
- b. Strengthen the administrative and management controls and processes to ensure that charges occurring more than 90 days prior to the award effective date are not charged to an award without NSF approval.

Summary of Awardee Response:

The University concurs with these questioned costs. See Appendix A for the complete UW response.

Auditor Comments:

UW's comment related to the \$6,648 is responsive to the issue noted in this finding. Once NSF determines that the recommendation has been adequately addressed and the \$6,648 in questioned costs has been returned, this issue should be closed.

Finding 6 – Unallowable Meal Expenditures

We found that meal expenses totaling \$2,650 charged to two NSF awards were not necessary or reasonable in accordance with 2 CFR 220.

According to 2 CFR 220, Appendix A, Section C, to be allowable for a federal grant, a cost must be allocable to the federal award and be necessary and reasonable for the administration and performance of the award. Furthermore, Sections C.2 and C.3 state that a reasonable cost is one that a "prudent person would have incurred under similar circumstances."

The NSF AAG, Chapter V, Section C.5, Meetings and Conferences states, "NSF funds are not to be spent for meals or coffee breaks for intramural meetings of an organization or any of its components, including, but not limited to, laboratories, departments and centers.... When certain meals are an integral and necessary part of a conference (e.g., working meals where business is transacted), grant funds may be used for such meals."

During our audit we noted the following unallowable meal charges:

- \$1,754 [REDACTED] is questioned in excessive meal expenditures to host a dinner for twelve attendees. Specifically, [REDACTED] was spent to provide dinner for twelve attendees. For dinner in Kirkland, WA in November 2011 the per diem was [REDACTED]. As a result, a total of \$95 [REDACTED] per attendee is questioned. These charges are excessive and unreasonable; and therefore, are questioned. UW has agreed that the meal costs in excess of per diem should be transferred off of the award;
- \$776 in excessive meal expenditures to host a dinner for twenty-five attendees. Specifically, \$1,576 (\$63 per attendee) was spent to provide dinner for twenty-five attendees. For dinner in

Seattle, WA in August 2011 the per diem was \$32. As a result, a total of \$31 per participant (\$63 minus \$32) was questioned. These charges are excessive and unreasonable; and therefore, are questioned. UW has agreed that the meal costs in excess of per diem should be transferred off of the award; and

- \$120 for meal expenditures that were not related to the award. UW has agreed to transfer the costs from the award.

UW personnel did not adequately consider the cost of the meal expenditures charged to the NSF awards which resulted in unreasonable costs. Without a process in place to ensure meal expenditures are reasonable and allowable, there is the increased risk that funds may not be used as required to accomplish the necessary project objectives in accordance with federal and NSF requirements. UW indicated that it has performed corrective actions to remove \$2,650 in unreasonable meal expenditures from the awards in question. NSF, during the audit resolution process, should ensure that the awards have been credited as appropriate.

Recommendation 6:

We recommend that the NSF's Director of the DIAS address and resolve the following UW recommendations:

- a. Work with NSF to resolve the \$2,650 of questioned costs; and
- b. Strengthen the administrative and management controls and processes for reviewing and approving costs charged to NSF awards for meal expenditures.

Summary of Awardee Response:

The University concurs with these questioned costs. See Appendix A for the complete UW response.

Auditor Comments:

UW's comment related to the \$2,650 is responsive to the issue noted in this finding. Once NSF determines that the recommendation has been adequately addressed and the \$2,650 in questioned costs has been returned, this issue should be closed.

Finding 7 – Travel after Award Expiration

We questioned \$1,740 for travel that occurred after award expiration. Airfare was purchased on June 29, 2010 from Seattle, WA to Athens, Greece departing September 3, 2010 on an award that expired on June 30, 2010. UW has agreed to transfer the costs from the award.

According to 2 CFR 220, Appendix A, Section C, to be allowable for a federal grant, a cost must be allocable to the federal award and be necessary and reasonable for the administration and performance of the award.

UW personnel did not adequately review the expenditures charged to NSF awards which resulted in unallowable costs. Without a process in place to ensure the proper monitoring of travel and purchases near award expiration, there is the increased risk that funds may not be spent in accordance with Federal requirements. UW indicated that it has performed corrective actions to remove \$1,740 in travel that

occurred after award expiration from the award in question. NSF, during the audit resolution process, should ensure that the award have been credited as appropriate.

Recommendation 7:

We recommend that the NSF's Director of the DIAS address and resolve the following UW recommendations:

- a. Work with NSF to resolve the \$1,740 of questioned costs; and
- b. Strengthen the administrative and management controls and processes for reviewing expenses for travel occurring near or after award expiration.

Summary of Awardee Response:

The University concurs with these questioned costs. See Appendix A for the complete UW response.

Auditor Comments:

UW's comment related to the \$1,740 is responsive to the issue noted in this finding. Once NSF determines that the recommendation has been adequately addressed and the \$1,740 in questioned costs has been returned, this issue should be closed.



WithumSmith+Brown, PC
November 25, 2015

APPENDICES

UNIVERSITY of WASHINGTON

November 25, 2015

WithumSmith+Brown
Two Logan Square
Eighteenth & Arch Streets, Suite 2001
Philadelphia, Pennsylvania 19103-2726

**RE: University of Washington response to the draft NSF OIG Audit of Incurred Costs for
National Science Foundation Awards for the Period April 1, 2010 to March 31, 2013**

The University of Washington (University) has reviewed the draft report received on November 10, 2015 and provides our comments below addressing the questioned costs in the report. We appreciate the opportunity to provide these comments prior to issuance of the final report.

We appreciate the professionalism and uniformly positive and congenial spirit of cooperation you and your team have shown in conducting this audit.

Below, please find our responses to the individual questioned costs.

Finding 1 – Exceeded NSF Limits on Senior Salary

The University does not concur with the questioned costs of \$1,824,117 for senior personnel salary. Based on the guidance from the NSF Policy Office, the University determined that the senior personnel salary costs identified in the report were appropriately allocated to NSF awards under institutional post-award rebudgeting authority. Since at least 2010, NSF has published consistent policy guidance related to senior personnel. NSF's express guidance states "...under the normal rebudgeting authority, an awardee can internally approve an increase in person months devoted to the project after an award is made, even if doing so results in salary support for senior personnel exceeding the 2 month salary rule. No prior approval from NSF is necessary." The language from the FAQ has been incorporated into the 12/26/14 PAPPG two-month salary provision to further reinforce that recipients may rebudget to charge more than two months' salary without NSF prior approval. As a recipient of Federal funds, the University must be able to rely on the written interpretations of NSF published policy provided by the NSF Policy Office in order to manage awards responsibly.

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Additionally, the NSF's Cost Analysis and Audit Resolution Branch of the Division of Institution and Award Support has sustained the position of institutions of higher education on similar audit findings in several other recent audits. This action by NSF management supports our position that rebudgeting of senior personnel salary without NSF prior approval was and is allowable.

The University believes that it has complied with the express guidance provided by NSF and NSF policies with respect to senior personnel salaries and that questioning these costs is not consistent with NSF policy, previous NSF audit resolutions, and related agency guidance in effect during the time of these expenditures.

Finding 2 – Unreasonable Equipment, Materials and Supplies Charges

The auditors identified equipment, materials and supply expenses totaling \$122,893 charged to 19 NSF awards that they assert were not necessary or reasonable. The University concurs with \$41,344 of costs questioned by the auditors but does not concur with \$81,549.

University purchase and usage of federally funded equipment is in part predicated on OMB Circular A-110 which was in effect at the time of these awards. It states "During the time that equipment is used on the project or program for which it was acquired, the recipient shall make it available for use on other projects or programs if such other use will not interfere with the work on the project or program for which the equipment was originally acquired."

Specifics related to the questioned costs and the University's response are as follows:

Equipment Purchases

The auditors questioned \$61,223 on eight awards for equipment purchased toward the award expiration that they assert did not appear to benefit the award or did not appear necessary considering the time remaining on the awards.

The University concurs with questioned costs totaling \$22,939, which were made up of the following items:

- \$9,057 for a conductivity, temperature and depth instrument;
- \$7,160 for the purchase of a digitizer; and
- \$6,722 for the purchase of a high-speed video camera.

The University does not concur with questioned costs totaling \$38,284, which were made up of the following:

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- \$16,424 for the purchase of a laser system

NSF Grant 0904004 was awarded to develop an ultrafast quantum logic gate to enable further research. The 12W Sprout DPSS laser system, which only became available in 2012, was required to provide the needed laser intensity and hence to complete the goals of the award. Awards with a primary goal of developing and upgrading an apparatus to further the research objectives have a different deliverable than normal research grants. Funds were provided in 0904004 to acquire a laser source with the necessary intensity. [REDACTED] acted appropriately in acquiring the laser system and charging a portion of the cost to the ultrafast quantum logic gate equipment award.

- \$5,821 for the purchase of an ultrasound detector

As indicated in the original proposal, this type of detector was available in the department for the research. Due to heavy use during the five-year span of the award, the old detector failed near the end of the award. To gather the final data and complete the funded aims of the research it became necessary to initiate this purchase. Completion of the award objectives and the final technical report to the sponsor depended on the use of this detector.

- \$4,736 for the purchase of a temperature control system

[REDACTED] planned to use an existing temperature control system when the proposal was submitted and was able to use it for some time but the existing system stopped working so a replacement needed to be purchased. The new system was necessary to this award in order to complete the project.

- \$4,673 for the purchase of an oscillator

The vendor loaned an oscillator to the department for use on the award while waiting for a new oscillator to arrive. It took an extended period of time for the new oscillator to be assembled and shipped. The vendor did not submit an invoice for the equipment until the new one was shipped. [REDACTED] could not have completed the scope of work for the award without the loaned equipment and the vendor would not have provided a loaner if the equipment was not going to be purchased.

- \$3,777 for the purchase of a centrifuge

Although the invoice is dated 3/15/2011, the centrifuge was ordered on 2/15/2011 and received on 2/24/2011. The centrifuge was purchased to replace one that ceased

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functioning, and without the replacement centrifuge the terms of the award could not have been completed. The broken unit could not be fixed without extensive repairs that would have cost more than a new unit. It was not included in the budget as it was not anticipated that the existing unit would break down.

- \$2,853 for an oscilloscope

A replacement oscilloscope for one that was defective had to be obtained to complete the testing included in the scope of work for this project.

Allocation of Equipment Costs

The auditors questioned \$27,935 for purchases of equipment charged to one award on the basis that the allocation of 50 percent of the equipment cost did not appear reasonable considering the limited time remaining on the award; and the methodology for the allocation was not supported.

The University does not concur with the following questioned costs:

- \$21,236 for the purchase of a laser system; and
- \$6,699 for the purchase of a high-resolution camera and frame grabber.

These two items were purchased together and used together to contribute to the research being conducted under the award charged.

The PI used the laser and camera on a set of experiments that were necessary and a key component of the research as planned in the proposal. Once all the setup had been completed and the velocities and turbulence intensities to explore identified, the PI was able to complete the experiments during the award period. The importance of these experiments in completing the project objectives cannot be made in parallel to the length of time the equipment was available or the time it took to conduct them. These costs were allocated to benefitting awards using the interrelationship provision in OMB Circular A-21 based on anticipated use on those awards.

Computer Purchases

The auditors questioned \$21,586 charged to seven awards for general-purpose computers purchased toward the award expiration, as the computers did not appear to benefit the award, or did not appear necessary considering the limited time remaining on the awards.

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The University concurs with the following questioned costs totaling \$9,121:

- \$4,573 for the purchase of two Mac Book Pro laptop computers;
- \$3,488 for the purchase of a laptop computer and desktop computer; and
- \$1,060 for the purchase of a computer.

The University does not concur with the following questioned costs totaling \$12,465:

- \$2,901 for a Mac Book Air laptop computer and two external drives

The laptop and external drives were used together as a system. They were necessary to carry out specific computations and other related symmetric functions in the Sage programming environment. No other mathematical package has the necessary software. The software was just being developed that year so it was not available earlier in the award period.

- \$2,826 for a Mac Book Pro laptop computer

The award primarily supported the purchase and administration of five powerful computer servers. The laptop in question is used to administer those servers.

- \$2,640 for a Mac Book Pro laptop computer and three-year Apple Care plan

The laptop was purchased to replace an existing laptop that failed near the end of the award. The replacement laptop was necessary to complete the project and was used primarily for this award through the end of the project.

- \$2,306 for the purchase of an external hard drive

The hard drive was purchased for the purpose of storing the research data derived from the award for the co-PI. The co-PI resides in a different department from the primary PI, and due to firewalls, does not have access to the primary PI's network where the other data from the award is stored. The cost of the hard drive is allocable to the award and the timing of the purchase is logical and appropriate under the circumstances.

- \$1,792 for the purchase of a Mac Book Pro laptop computer

The computer was used to analyze and characterize the properties of samples to conduct the investigation and was put into service upon arrival. A new computer was necessary

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to retain compatibility with newer hardware and software and allow completion of the project.

Material and Supply Purchases

The auditors questioned \$12,149 on five awards for materials and supplies purchased near the award expiration that they maintained did not appear to benefit the award or that did not appear necessary, considering the limited time remaining on the awards.

The University concurs with the following questioned costs totaling \$9,284:

- \$3,800 for the purchase of supplies;
- \$2,245 for the purchase of lab supplies;
- \$1,875 for the purchase of lab materials; and
- \$1,364 for the purchase of supplies.

The University does not concur with the following questioned costs totaling \$2,865:

- \$1,858 for the purchase of lab supplies

During the award various testing methods and materials were used in an attempt to prove a hypothesis. Near the end of the award an alternative test was introduced that involved the use of these materials.

- \$1,007 for the purchase of research books

The books were purchased as reference material necessary to complete the paper that reported the results of the project published in 2012.

Finding 3 – Unsupportable and Unallocable Transactions

The auditors identified \$36,240 of costs that they deemed unsupportable and unallocable related to eleven awards.

The University concurs with the questioned costs totaling \$12,868.

- The auditors identified unsupported purchase card transactions totaling \$12,868 on eight NSF awards.

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Although the University believes these costs benefited the awards to which they were charged, we acknowledge that the purchase receipts could not be located during the audit.

The University does not concur with the questioned costs totaling \$23,372 which the audit asserts were unallocable to two of the three awards.

- The auditors identified \$23,372 ([REDACTED]) for a trip to the University of Hawaii they claim was unallocable to two of three of the NSF awards to which it was charged.

[REDACTED] confirmed that the research performed during the trip benefited all three awards. [REDACTED] comments that all three are closely interrelated ([REDACTED])

[REDACTED] During the period of the trip, [REDACTED] was funded from a combination of state funds, a private award and a NSF award.

In allocating a single cost across multiple awards, the University applies the principles outlined in OMB Circular A-21 which was in effect at the time of these awards. It states: "If a cost benefits two or more projects or activities in proportions that can be determined without undue effort or cost, the cost should be allocated to the projects based on the proportional benefit. If a cost benefits two or more projects or activities in proportions that cannot be determined because of the interrelationship of the work involved, then, notwithstanding subsection b, the costs may be allocated or transferred to benefited projects on any reasonable basis, consistent with subsections d. (1) and (2)."

The University has reviewed the allocation used at the time the expense posted and determined that the costs should be re-allocated equally among the three awards, as this is a more reasonable distribution of the cost based on the benefit provided to each award.

We disagree with the finding that expenses were not adequately supported. We believe we have provided documentation to support every expense claimed. University policy does not require [REDACTED] in support of per diem, but rather use an established rate.

We also disagree with the conclusion that the per diem was over-claimed on this award. The amount of per diem claimed was actually less than the authorized amount.

AWARDEE RESPONSE

UNIVERSITY of WASHINGTON

In addition, the finding contends that after 31 days travelers must adhere to a reduced per diem rate of 75 percent. We can find no reference to support this in the NSF Grants Policy Manual. Under NSF and Federal award policies, the University is allowed to comply with our own established travel policies which are based on the policies of the State of Washington. The University's policy states that departments should review travel status after 90 days and determine whether travel should be moved onto a temporary duty station status, which would invoke a reduced rate.

Ref: <http://f2.washington.edu/fm/travel/responsibility>

Finding 4 – Unreasonable or Unallowable Transactions

The auditors identified \$8,821 charged to five awards that they contended were unreasonable or unallowable expenses which were not in accordance with 2 CFR 220.

The University concurs with the following questioned costs totaling \$5,821:

- \$3,920 and \$1,179 for the purchase of promotional items;
- \$684 for the purchase of expendable supplies; and
- \$38 for interest charges.

The University does not concur with the following questioned cost:

- \$3,000 for a cash award given to a student for placing first in a competition.

This expenditure was in direct support of the aims of this NSF award. The competition for which the award was given directly addressed the need of creating computer programming projects related to broadening participation in computing, particularly to students with disabilities.

Finding 5 – Purchases before Award Effective Date

The auditors questioned \$6,648 charged to two NSF awards for purchases made more than 90 days prior to the award effective date without NSF approval.

The University concurs with these questioned costs.

Finding 6 – Unallowable Meal Expenditures

AWARDEE RESPONSE

UNIVERSITY of WASHINGTON

The auditors questioned meal expenses totaling \$2,650 charged to two NSF awards that they contended were not necessary or reasonable in accordance with 2 CFR 220.

The University concurs with these questioned costs.

Finding 7 – Travel after Award Expiration

The auditors questioned \$1,740 for travel that occurred after award expiration.

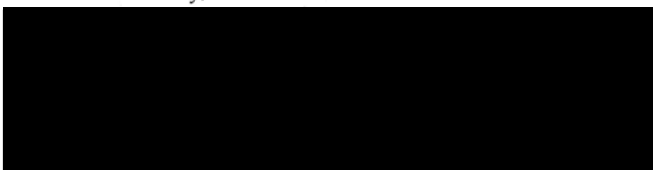
The University concurs with this questioned cost.

In response to the recommendations provided, we agree to work with NSF management to resolve each of the questioned costs. Each questioned cost category also included a recommendation that the University strengthen the administrative and management controls and processes.


In reviewing the report and questioned costs we believe the audit confirms the effectiveness of our management systems as well as the dedication and commitment of our faculty and staff to manage NSF awards in a compliant manner. The University is committed to continually improve our oversight and management of NSF awards. This audit provides an opportunity to further strengthen our administrative and management controls and processes and to continue to enhance already robust outreach and training.

We will continue to work with WithumSmith+Brown, the NSF OIG and the NSF Division of Institution and Award Support to bring this audit to a conclusion, and will be happy to provide additional information on any of the questioned costs. Please refer further questions to me at (206) 543-8951. Thank you.

Sincerely,



Associate Vice President
Research and Student Accounting
University of Washington



Objectives, Scope, and Methodology

Our audit included assessing the allowability, allocability and reasonableness of costs claimed by UW on the quarterly Federal Financial Reports (FFR) for the three-year period beginning April 1, 2010 through March 31, 2013. We also reviewed the accuracy, reasonableness, and timeliness of UW's ARRA reporting.

The audit was performed in accordance with *Government Auditing Standards* for performance audits. The audit objectives were to:

1. Identify and report on instances of unallowable, unallocable, and unreasonable costs from the transactions tested;
2. Identify and report on instances of noncompliance with regulations, Federal financial assistance requirements (e.g. Office of Management and Budget Circulars), and the provisions of the NSF award agreements as it relates to the transactions tested; and
3. Determine the reasonableness, accuracy, and timeliness of the awardee's ARRA quarterly reporting, including reporting of jobs created under ARRA and grant expenditures for the two most recent quarters.

To accomplish our objectives, we assessed the reasonableness, accuracy, and timeliness of the awardee's ARRA quarterly reporting, including reporting of jobs created under ARRA and grant expenditures for the two most recent quarters, by 1) recomputing the number of jobs created or retained in compliance with OMB Memorandum M-10-08, *Updated Guidance on the American Recovery and Reinvestment Act – Data Quality, Non-Reporting Recipients, and Reporting of Job Estimates*; 2) reconciling expenditures per the general ledger to the ARRA expenditures; and 3) reviewing the ARRA reporting submission dates.

To aid in determining reasonableness, allowability, and allocability of costs, we obtained from UW all awards for which costs were reported to NSF during the period of April 1, 2010, through March 31, 2013. This provided an audit universe of approximately \$296 million, in more than 731,000 transactions, across 1,207 individual NSF awards and an NSF ARRA universe of approximately \$31 million of expenditures, in more than 77,000 transactions, across 78 NSF awards.

Our work required reliance on computer-processed data obtained from UW and NSF. At our request, UW provided detailed transaction data for all costs charged to NSF awards during our audit period. We also obtained award data directly from NSF which was collected by directly accessing NSF's various data systems. To select transactions for further review, we designed and performed automated tests of UW and NSF data to identify areas of risk and conducted detailed reviews of transactions in those areas.

We assessed the reliability of the data provided by UW by: 1) comparing costs charged to NSF award accounts within UW's accounting records to reported net expenditures, as reflected in UW's quarterly financial reports submitted to NSF for the corresponding periods; 2) performing general ledger to sub-ledger reconciliations of accounting data; and 3) reviewing and testing the parameters UW used to extract transaction data from its accounting records and systems.

Based on our testing, we found UW computer-processed data sufficiently reliable for the purposes of this audit. We did not review or test whether the data contained in, or controls over, NSF's databases were accurate or reliable; however the independent auditors' report on NSF's financial statements for fiscal

Objectives, Scope, and Methodology

years 2010 and 2011 found no reportable instances in which NSF's financial management systems did not substantially comply with applicable requirements.

In assessing the allowability of costs reported to NSF by UW, we also gained an understanding of the internal controls applicable to the scope of this audit through interviews with UW, review of policies and procedures, and conducting walkthroughs as applicable.

We assessed UW's compliance with the University's internal policies and procedures, as well as the following:

- Public Law 111-5, *American Recovery and Reinvestment Act of 2009*;
- OMB Circular A-21, *Cost Principles for Educational Institutions* (2 C.F.R., Part 220);
- OMB Circular A-110, *Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations* (2 C.F.R., Part 215);
- OMB Memorandum M-10-08, *Updated Guidance on the American Recovery and Reinvestment Act – Data Quality, Non-Reporting Recipients, and Reporting of Job Estimates*;
- NSF Proposal and Award Policies and Procedures Guide (includes the Grant Proposal Guide and Awards and Administration Guide);
- NSF Award Specific Terms and Conditions; and
- NSF Federal Demonstration Partnership Terms and Conditions.

QUESTIONED COST SUMMARY BY AWARD

Award ID	ARRA Designator	Salary Questioned	Fringe Benefit Questioned	Overhead Questioned	Total Questioned
Finding 1 – Exceeded NSF Limits on Senior Salary					
		\$			\$ 97,949
					73,581
					68,933
	ARRA				58,881
					58,880
					51,216
					49,050
					47,201
					46,612
					45,087
					42,540
					40,925
					40,897
	ARRA				37,806
					36,910
					36,452
	ARRA				35,911
	ARRA				29,708
					27,717
					27,331
	ARRA				25,413
					24,974
					24,906
					22,463
					22,155
					21,376
					20,830
					20,592
					19,964
					19,671
					18,893
					18,680
					18,559
					18,557
					18,352
					18,266
					18,177
					17,203
					17,169
					16,791
					15,961

QUESTIONED COST SUMMARY BY AWARD

Award ID	ARRA Designator	Salary Questioned	Fringe Benefit Questioned	Overhead Questioned	Total Questioned
					15,867
					15,846
	ARRA				15,518
					15,217
					15,007
					14,131
					13,815
					13,792
					13,620
					13,582
					13,578
	ARRA				13,350
					11,955
					11,500
					11,479
	ARRA				11,231
					10,768
					10,539
					10,222
					9,840
					9,771
					9,221
	ARRA				8,918
					8,364
					8,102
					7,936
					7,203
	ARRA				7,009
					6,909
					6,551
					6,222
					6,124
					6,074
					6,027
					5,934
					5,818
	ARRA				5,780
					5,525
					5,514
					5,195
					5,133
					4,794
					4,489

QUESTIONED COST SUMMARY BY AWARD

Award ID	ARRA Designator	Salary Questioned	Fringe Benefit Questioned	Overhead Questioned	Total Questioned
					4,430
					3,981
					3,175
					3,095
					2,833
					2,376
					1,927
					1,752
					1,692
	ARRA				1,688
	ARRA				1,626
					1,548
					1,424
					1,251
					1,221
					1,098
					1,025
	ARRA				830
					436
					404
					296
Total		\$			\$ 1,824,117

QUESTIONED COST SUMMARY BY AWARD

Award ID	ARRA Flag	Amount Questioned	Overhead Questioned	Total Questioned
Finding 2 – Unreasonable Equipment, Materials and Supplies Charges				
0731248		\$ 27,935	\$ -	\$ 27,935
0904004		16,424	-	16,424
0623102				
0628663		9,057	-	9,057
0729849		7,589	-	7,589
0449422		7,160	-	7,160
0642253				
0719295		5,821	-	5,821
0541733		3,777	-	3,777
0938558		4,673	-	4,673
0744892				
0902626				
0800978		2,901	-	2,901
0821725		2,826	-	2,826
0731947		2,306	-	2,306
0805259				
0706647				
0750048		1,060	-	1,060
0836095		1,007	-	1,007
Finding 2 Total				\$ 122,893
Finding 3 – Unsupportable and Unallocable Transactions				
0707901		\$		
1010287				
1008784				
0807500				
1050295		2,471	-	2,471
1028725				
0520567				
0508109				
1202879				
1233067				
0901996				
Finding 3 Total		\$		\$ 36,240

QUESTIONED COST SUMMARY BY AWARD

Award ID	ARRA Flag	Amount Questioned	Overhead Questioned	Total Questioned
Finding 4 – Unreasonable or Unallowable Transactions				
0819407		\$ [REDACTED]	[REDACTED]	\$ [REDACTED]
1042260		3,000	-	3,000
0965816		1,179	-	1,179
1028725		[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]
Finding 4 Total		[REDACTED]	[REDACTED]	\$ 8,821
Finding 5 – Purchases Before Award Effective Date				
1015793		\$ [REDACTED]	[REDACTED]	[REDACTED]
1008784		[REDACTED]	[REDACTED]	[REDACTED]
Finding 5 Total		\$ [REDACTED]	[REDACTED]	\$ 6,648
Finding 6 – Unallowable Meal Expenditures				
0835854		\$ [REDACTED]	[REDACTED]	[REDACTED]
1050680		[REDACTED]	[REDACTED]	[REDACTED]
Finding 6 Total		\$ [REDACTED]	[REDACTED]	\$ 2,650
Finding 7 –Travel After Award Expiration				
0543631		\$ [REDACTED]	[REDACTED]	\$ 1,740

QUESTIONED COST SENIOR SALARY SUMMARY BY INSTANCE

Instance	Months Over	Salary Questioned	Fringe Benefit Questioned	Overhead Questioned	Total Questioned
Finding 1 – Exceeded NSF Limits on Senior Salary by Instance					
1	5.16	\$			123,420
2	5.00				57,908
3	4.73				42,793
4	4.57				89,437
5	4.08				69,433
6	3.87				43,686
7	3.76				37,522
8	3.68				32,821
9	3.63				31,885
10	3.46				42,540
11	3.45				45,088
12	3.37				38,589
13	3.34				15,459
14	3.22				23,632
15	3.16				39,855
16	3.08				52,776
17	3.08				52,974
18	2.92				71,271
19	2.81				44,966
20	2.67				30,443
21	2.56				74,463
22	2.36				38,282
23	2.35				51,216
24	2.27				37,130
25	2.13				40,925
26	2.08				24,974
27	2.04				28,718
28	1.99				40,467
29	1.83				45,639
30	1.71				29,708
31	1.69				30,371
32	1.68				23,049
33	1.57				30,133
34	1.54				18,255
35	1.50				14,329
36	1.46				15,673
37	1.31				20,026
38	1.23				15,392
39	1.22				19,953
40	1.20				14,665
41	1.13				12,990
42	1.12				15,509

QUESTIONED COST SENIOR SALARY SUMMARY BY INSTANCE

Instance	Months Over	Salary Questioned	Fringe Benefit Questioned	Overhead Questioned	Total Questioned
43	1.11				18,486
44	1.00				15,846
45	1.00				6,027
46	0.85				16,791
47	0.83				14,035
48	0.78				14,998
49	0.76				23,140
50	0.74				10,824
51	0.71				6,074
52	0.70				15,217
53	0.64				6,124
54	0.50				9,767
55	0.49				6,909
56	0.44				7,772
57	0.42				6,701
58	0.32				2,228
59	0.30				1,688
60	0.28				6,551
61	0.13				3,317
62	0.10				1,537
63	0.10				867
64	0.05				853
Total		\$			\$ 1,824,117