



At a Glance

Performance Audit of Incurred Costs — Scripps Institution of Oceanography, University of California, San Diego

Report No. 17-1-005, March 23, 2017

Audit Objective

The National Science Foundation, Office of Inspector General (OIG) engaged WithumSmith+Brown (WSB) to conduct a performance audit of incurred costs at Scripps Institution of Oceanography, University of California, San Diego (Scripps) for the period April 1, 2012, to March 31, 2015. The audit universe included more than \$110 million in costs claimed to NSF. The objective of the audit was to determine if costs claimed by Scripps during this period were allocable, allowable, reasonable, and in conformity with NSF award terms and conditions and applicable Federal financial assistance requirements.

WSB is responsible for the attached auditor's report and the conclusions expressed in this report. The NSF OIG does not express any opinion on the conclusions presented in WSB's audit report.

Recommendations

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

Contact Information

For further information, contact the NSF OIG at (703) 292-7100 or oig@nsf.gov.

Audit Results

Costs Scripps charged to its NSF-sponsored agreements did not comply with Federal and NSF award requirements. The auditors questioned \$111,516 of costs claimed by Scripps during the audit period. Specifically, auditors found:

- \$95,203 in equipment, materials, and supplies expenses unreasonably purchased near award expiration;
- \$7,723 in unallowable indirect costs;
- \$4,700 in unreasonable participant support expenditures; and
- \$3,890 in unallocable transactions.

Awardee Response

Of the four findings in the report, Scripps agreed with two and disagreed with two. Scripps contends that the costs within the findings are allowable and disagreed with the auditors' interpretation of the Federal guidance. Scripps also did not agree with the auditors' statements that there were weaknesses in management and administrative controls. After taking Scripps' comments into consideration, the auditors continue to question the costs and left the findings unchanged.

Scripps' response is attached in its entirety to the report as Appendix A.



National Science Foundation • Office of Inspector General
4201 Wilson Boulevard, Suite I-1135, Arlington, Virginia 22230

MEMORANDUM

Date: March 23, 2017

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

Jamie French
Director, Division of Grants and Agreements

From: Mark Bell
Assistant Inspector General, Office of Audits

Subject: Audit Report No. 17-1-005
Scripps Institution of Oceanography, University of California, San Diego

A handwritten signature in blue ink that reads "Mark Bell".

This memo transmits the WithumSmith+Brown (WSB) report for the audit of costs totaling approximately \$110 million charged by Scripps Institution of Oceanography, University of California, San Diego (Scripps) to its sponsored agreements with the National Science Foundation during the period April 1, 2012, to March 31, 2015. The objective of the audit was to determine if costs claimed by Scripps 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 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 and NSF officials, 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.

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 Keith Nackerud at 303-844-5745.

Attachment

cc: Dr. Joan Ferrini-Mundy, Chief Operating Officer (Acting), OD
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**Scripps Institution of Oceanography
University of California San Diego
Audit of Incurred Costs for
National Science Foundation Awards
For the Period April 1, 2012 to March 31, 2015**

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ACRONYMS

ARRA	American Recovery and Reinvestment Act
CFR	Code of Federal Regulation
DIAS	Division of Institution and Award Support
NSF	National Science Foundation
OIG	Office of Inspector General
OMB	Office of Management and Budget
PI	Principal Investigator
P.L.	Public Law
SIO	Scripps Institution of Oceanography

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. The Scripps Institution of Oceanography, University of California San Diego (SIO) is an NSF award recipient.

The mission of SIO is to communicate scientific understanding of the oceans, atmosphere, Earth, and other planets for the benefit of society and the environment. In fiscal year 2015, SIO received \$124 million in sponsored Federal research dollars. NSF was the largest contributor at \$32 million. Because SIO receives significant NSF awards, the NSF Office of Inspector General (OIG) selected SIO for audit.

WithumSmith+Brown, under contract with NSF OIG, audited the costs claimed by SIO on NSF awards for the period beginning April 1, 2012, and ending March 31, 2015. The audit objective was to determine whether the costs claimed complied with NSF award terms and conditions and Federal financial assistance requirements. 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 detailed in Appendix B.

Results in Brief

To aid in determining reasonableness, allowability, and allocability of costs, we obtained from SIO all award transactions comprising costs claimed on NSF awards during the period of April 1, 2012, through March 31, 2015. This provided an audit universe of approximately \$110 million, in approximately 63,000 transactions, across 291 individual NSF awards. For transaction testing we judgmentally selected 283 transactions totaling \$2.0 million and utilized a data analytics approach to identify potential risk areas. We also performed additional non-transaction based tests as we deemed necessary.

Of the \$2.0 million in the transaction testing, our audit questioned \$111,516 of costs claimed on nine NSF awards because SIO did not comply with Federal and NSF award requirements. Specifically, we noted: \$95,203 in equipment, materials, and supplies expenses unreasonably purchased near award expiration; \$7,723 in unallowable indirect costs; \$4,700 in unreasonable participant support expenditures; and \$3,890 in unallocable transactions. These questioned costs resulted in four areas identified where SIO controls could be improved to ensure compliance with laws and regulations.

SIO reviewed and agreed with the facts for \$7,723 in unallowable indirect costs and \$3,890 in unallocable costs. SIO did not agree with \$99,903 in questioned costs: 1) \$95,203 in equipment, materials, and supplies expenses unreasonably purchased near award expiration; and 2) \$4,700 in unreasonable participant support expenditures. 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 (DIAS), Resolution and Advanced Monitoring Branch.

Findings and Recommendations

Finding 1 – Equipment, Materials, and Supplies Unreasonably Purchased Near Award Expiration

We found that equipment, materials, and supply expenses totaling \$95,203 charged to five NSF awards were not necessary or reasonable in accordance with Federal cost principles.

According to 2 Code of Federal Regulation (CFR) 220 (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 or 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. Section A states, “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.”

Additionally, NSF’s Award and Administrative Guide, Chapter V, Section A.2.c states that a grantee should not purchase items of equipment, computing devices, or restock materials and supplies where there is little or no time left for such items to be utilized in the actual conduct of the research.

Specifically, we questioned the \$95,203 below on five awards for equipment and supplies purchased near the award expiration that did not appear to benefit the award or that did not appear reasonable or prudent considering the limited time remaining on the awards.

- \$67,545 (\$43,577 plus \$23,968 associated indirect costs) for the purchase of 11 recorders on one award. The recorders were shipped between July 14 and July 24, [REDACTED], on a 4-year award that expired on August 31, [REDACTED]. The recorders were shipped with only 3 percent of the grant life remaining (48 out of 1,460 days). Per SIO, “these recorders were replacements/upgrades of recorders that were lost in the Antarctic on birds that did not return from sea.... As indicated in our budget justification, we had recorders on hand at the beginning of the award, and these were used during this project’s field seasons. We also indicated that the NSF would be used to replace the lost recorders.” Per the revised NSF award budget justification, SIO had 10 recorders on hand at the beginning of the award ready for deployment and had budgeted \$7,800 to cover the potential damage or loss at sea of two recorders. It is unreasonable that SIO, with 3 percent of the grant life remaining, spent \$67,545, 17 percent of the total NSF award budget, on recorders that were never used on the NSF award.
- \$12,024 (\$7,782 plus \$4,242 associated indirect costs) for the purchase of a Mac Pro, MacBook Pro, iPad Air, and computer accessories on one award. The MacBook Pro, iPad Air, and computer accessories were purchased on August 26, 2014, and the Mac Pro was purchased on August 29, [REDACTED], on a 6-year award that expired on August 31, [REDACTED]. The MacBook Pro, iPad Air, and computer accessories were available for 5 days prior to the award expiration (5 out of 2,190 days), and the Mac Pro was available for 2 days prior to the award expiration (2 out of 2,190 days).
- \$7,231 (\$4,681 plus \$2,550 associated indirect costs) for the purchase of a Mac Pro. The computer was purchased on April 5, [REDACTED], 25 days prior to the award expiration on April 30, [REDACTED]. The entire award budget was meant to cover the cost of securing ship time on a vessel; the purchase of the computer does not appear reasonable or necessary.

- \$4,255 (\$2,754 plus \$1,501 associated indirect costs) for the purchase of a Navigator Pump. The item was shipped on August 14, [REDACTED], on a 4-year award that expired on August 31, [REDACTED]. The pump was available for 1 percent of the grant life (17 out of 1,446 days).
- \$4,148 (\$2,685 plus \$1,463 associated indirect costs) for the purchase of a MacBook Pro and an iMac. The two computers were purchased on May 11, [REDACTED], on a 3-year award that expired on July 31, [REDACTED]. The computers were available for 7 percent of the grant life (81 out of 1,095 days). The PI stated, the “iMac replaced my old iMac, which was so slow it was unusable, and the MacBook was an addition to compliment [sic] my workstation and also to allow mobility....” The purchase of two computers at the end of the grant life does not appear prudent or necessary.

SIO personnel did not adequately review the expenditures charged to the NSF awards, which resulted in unreasonable costs. Without an effective process in place to ensure the reasonableness of equipment, materials, and supplies 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.

Recommendation 1:

We recommend that the NSF’s Director of the DIAS address and resolve the following SIO recommendations:

- 1) Work with NSF to resolve the \$95,203 of questioned costs; and
- 2) Strengthen the administrative and management controls and processes for reviewing and approving equipment, materials, and supplies charged to NSF awards.

Summary of Awardee Response:

SIO disagrees with the conclusions for the \$95,203 of questioned costs.

SIO does not concur with questioned costs totaling \$67,545 for the purchase of 11 recorders. SIO stated that all of the researcher’s federally funded awards are so closely interrelated that it is unreasonable to prorate the expenses. The proposal stated that 10 recorders were on hand at the beginning of the project, and the budgeted expenses were to cover recorders that were damaged or lost. SIO stated that the replacement recorders will be used for continuing research funded by NSF and the National Oceanic and Atmospheric Administration (pending awards).

SIO does not concur with questioned costs totaling \$12,024 for the purchase of a Mac Pro, MacBook Pro, iPad Air, and computer accessories. SIO believes the computers and related accessories were reasonable and necessary, and stated that the purchase continues to be used in support of NSF-sponsored research.

SIO does not concur with questioned costs totaling \$7,231 for the purchase of a Mac Pro. SIO stated that the award budget was funded as a supplement to an American Recovery and Reinvestment Act award and the funds requested were for securing additional ship time on a vessel. The additional ship time allowed the researchers to collect a large volume of data and SIO believes the purchase of the computer was reasonable and necessary to carry out the data quality control and analysis.

SIO does not concur with questioned costs totaling \$4,255 for the repair of a Navigator Pump. SIO stated the pump repair was needed to validate data collected throughout the life of the project and without the pump repair the PI would not have had conclusive verified results to report.

SIO does not concur with questioned costs totaling \$4,148 for the purchase of a MacBook Pro and iMac. SIO believes the computers were necessary to achieve the aims of the project.

See Appendix A for the complete SIO response.

Auditor Comments:

The purchase of 11 recorders costing \$67,545 was not reasonable. Per the revised NSF award budget justification, SIO had 10 recorders on hand at the beginning of the award ready for deployment and had budgeted \$7,800 to cover the potential damage or loss at sea of two recorders. It is unreasonable that SIO, with 3 percent of the grant life remaining, spent \$67,545, 17 percent of the total NSF award budget, on recorders that were never used on this NSF award. Therefore, the report finding remains as previously stated.

The purchase of a Mac Pro, MacBook Pro, iPad Air, and computer accessories, costing \$12,024, with just 5 days remaining on the award, was not reasonable or prudent. Although the computers may have benefitted the research efforts, given the limited time remaining on the NSF award, that benefit is greater for future research projects. Therefore, the report finding related to these matters remains as previously stated.

The purchase of a MacPro costing \$7,321 was not reasonable. The entire award budget was meant to cover the cost of securing ship time on a vessel; the computer should have been charged to the larger project, not the supplemental award. Additionally, per NSF's Award and Administrative Guide, Chapter I, Section E.2, residual funds remaining in the old grant cannot be transferred to the new grant. Therefore, the report finding related to this matter remains as previously stated.

The repair of the Navigator Pump costing \$4,255 with less than 1 percent of the grant life remaining was not reasonable. Although the pump may have benefitted the research efforts, given the limited time remaining on the NSF award, that benefit is greater for future research projects. Therefore, the report finding related to this matter remains as previously stated.

The purchase of a MacBook Pro and an iMac costing \$4,148 for use by the PI at the end of the grant life was not prudent or necessary. Therefore, the report finding related to these matters remains as previously stated.

Finding 2 – Unallowable Indirect Costs

We questioned \$7,723 in unallowable indirect costs charged to two NSF awards. The indirect costs were assessed against equipment purchases, which is unallowable in accordance with Federal cost principles.

According to 2 CFR 220, Appendix A, Section G.2,

“F&A [facilities and administrative] costs shall be distributed to applicable sponsored agreements and other benefiting activities within each major function on the basis of modified total direct costs, 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.”

Specifically, we questioned the indirect costs assessed against the following purchases:

- \$5,545 for indirect costs charged on the purchase of computer servers.
- \$2,178 for indirect costs charged on the purchase of a broadband transducer.

SIO personnel incorrectly coded the above transactions as non-inventorial equipment, and, therefore, they were assessed indirect costs. Without an effective process in place to ensure equipment is excluded from modified total direct costs, there is the increased risk that funds may not be spent in accordance with Federal requirements. SIO indicated that it has performed corrective actions to remove \$7,723 in unallowable costs from the awards in question. NSF, during the audit resolution process, should ensure that the awards have been credited as appropriate.

Recommendation 2:

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

- 1) Work with NSF to ensure the \$7,723 of questioned costs have been removed from NSF awards; and
- 2) Strengthen the administrative and management controls and processes for reviewing and approving indirect costs charged to NSF awards.

Summary of Awardee Response:

SIO agrees with the conclusion for \$7,723 of questioned costs. SIO agrees to refund \$5,545 and has taken corrective action to reverse the \$2,178.

See Appendix A for the complete SIO response.

Auditor Comments:

SIO's comment related to the \$7,723 is responsive to the issue noted in this finding. Once NSF determines that the recommendation has been adequately addressed and the \$7,723 in questioned costs has been returned, this issue should be closed.

Finding 3 – Unreasonable Participant Support Expenditures

We questioned \$4,700 charged to one NSF award for rental of the Scripps Forum facility to hold a workshop, which was not in accordance with Federal cost principles.

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, Appendix A, Section C.3, provides that a reasonable cost is one that a "prudent person would have incurred under similar circumstances."

The total NSF award budget was \$52,998, of which \$47,564 was budgeted for participant support funds requested "for 37 workshop participants' travel, subsistence and lodging," to attend the workshop held at the Scripps Forum facility. The budget also included \$3,800 for materials, supplies, and salaries. The cost of the Scripps Forum facility rental was not included in the NSF award budget.

Per the NSF Grant Proposal Guide (effective Dec. 26, 2014) Chapter II, (C.2.g.v), participant support refers to costs for items such as stipends or subsistence allowances, travel allowances, and registration fees paid to or on behalf of participants or trainees in connection with NSF-sponsored conferences or training projects. Funds provided for participant support may not be used for other categories of expense without specific prior NSF written approval.

The \$4,700 for rental of the Scripps Forum facility was not participant support, and SIO did not receive prior NSF written approval to use participant support funds for the facility rental. The \$4,700 that was charged to rent the facility could have been used on additional workshop participants. Additionally, the \$4,700 for the cost of the facility rental was transferred on August 13, [REDACTED], from another award that was over budget and expired on August 31, [REDACTED].

Finally, per the “Facilities, Equipment and Other Resources” statement in the award proposal, access to the Scripps Forum was necessary and available. According to the NSF Grant Proposal Guide, the Foundation expects the resources identified will be provided, or made available, should the proposal be funded. It is not reasonable to charge NSF \$4,700 for the facility rental that the proposal indicated would be available.

SIO personnel did not adequately review the expenditures charged to the NSF award, which resulted in unreasonable participant support costs. Without an effective process in place to ensure the reasonableness of expenditures, 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.

Recommendation 3:

We recommend that the NSF’s Director of the DIAS address and resolve the following SIO recommendations:

- 1) Work with NSF to resolve the \$4,700 of questioned costs; and
- 2) Strengthen the administrative and management controls and processes for reviewing and approving transactions charged to NSF awards.

Summary of Awardee Response:

SIO does not concur with questioned costs totaling \$4,700 for the rental of the Scripps Forum facility. SIO stated that this NSF grant was awarded to fund the [REDACTED], the proposal discusses the use of Scripps Forum as the venue for this conference, and the cost of the venue was specifically targeted for participant support. SIO believes the venue costs were meaningful and necessary expenses in support of each participant attending and contributing to the [REDACTED].

See Appendix A for the complete SIO response.

Auditor Comments:

The \$4,700 for rental of the Scripps Forum facility was not participant support, and SIO did not receive prior NSF written approval to use participant support funds for the facility rental. Per the NSF award budget, participant support funds were requested to fund 37 workshop participants’ travel, subsistence and lodging; the cost of the Scripps Forum facility rental was not included in the NSF award budget. Per the “Facilities, Equipment and Other Resources” statement in the award proposal, access to the Scripps Forum was necessary and available. According to the NSF Grant Proposal Guide, the grantee is required to obtain written authorization before reallocating participant support funds and the Foundation expects the resources

identified will be provided should the proposal be funded. Therefore, the report finding related to these matters remains as previously stated.

Finding 4 – Unallocable Transactions

We questioned \$3,890 charged to one award for the purchase of a data storage system that was not in accordance with Federal cost principles.

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 or it benefits both the sponsored agreement and other work of the institution in proportions that can be approximated through the 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.

SIO purchased parts for a data storage system costing \$7,780 (\$6,592 plus \$1,188 associated indirect costs) and charged the entire cost to the NSF award; however, SIO personnel stated that the data storage system was only used 50 percent on the NSF award. We are questioning 50 percent of the \$7,780 charged to NSF because it was not allocable to the NSF award; \$3,890 (\$3,296 plus \$594 associated indirect costs).

SIO personnel did not adequately review the expenditures charged to NSF awards, which resulted in unallocable costs. Without an effective process in place to ensure costs are 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.

Recommendation 4:

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

- 1) Work with NSF to resolve the \$3,890 of questioned costs; and
- 2) Strengthen the administrative and management controls and processes for reviewing and approving transactions charged to NSF awards.

Summary of Awardee Response:

SIO agrees with the conclusion for \$3,890 of questioned costs and agrees to refund \$3,890.

See Appendix A for the complete SIO response.

Auditor Comments:

SIO's comment related to the \$3,890 is responsive to the issue noted in this finding. Once NSF determines that the recommendation has been adequately addressed and the \$3,890 in questioned costs has been returned, this issue should be closed.



WithumSmith+Brown, PC
3/21/17

APPENDICES

APPENDIX A

AWARDEE RESPONSE

UNIVERSITY OF CALIFORNIA, SAN DIEGO

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February 6, 2017

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The University of California, San Diego (University) submits the following comments in response to WithumSmith+Brown's (WSB) draft report for the Audit of Incurred Costs for National Science Foundation (NSF) Awards to Scripps Institution of Oceanography (SIO) for the period April 1, 2012 to March 31, 2015.

WSB identified four findings on nine NSF awards. Responses to each are provided below.

1. Equipment, Materials, and Supplies Unreasonably Purchased near Award Expiration

WBS found that equipment, materials, and supply expenses totaling \$95,203 charged to five NSF awards were not necessary or reasonable in accordance with Federal cost principles.

A. \$67,545 (\$43,577 plus \$23,968 associated indirect costs) for the purchase of 11 recorders on one award.

University Response:

The University does not concur with the auditor's conclusion. All of the researcher's federally funded research awards are in support of the same techniques and goals, measuring blood oxygen depletion, heart rate, and other physiological variables in marine mammals and emperor penguins. These projects are so closely interrelated that it is unreasonable to prorate the expenses as the loggers would benefit many of the researcher's ongoing projects. Recorders from other projects that were current in 2010-2011 (and others that were still functional from prior projects) were utilized in the polar programs project. Use of this pool of recorders among different projects allows projects to be accomplished in these times of budget restraints. Some of the recorders have been used in the researcher's Federal Demonstration Partnership (FDP) Office of Naval Research (ONR) project with sea lions and he will continue to use them on current and future FDP related sponsored research.

The proposal for this award included a budget for replacement of digital ECG recorders and TDR. The proposal clearly states that five ECG recorders and five TDR's were on hand at the beginning of the project, and the budgeted expenses were to cover potential damage to recorders, or recorders that have been lost at sea. The recorders were all lost while at sea, and the funds were used to replace the recorders,

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as stated in the proposal. These replacement recorders will be used for continuing research funded by NSF and National Oceanic and Atmospheric Administration (NOAA) (pending awards).

Per FDP:

"(2) The following clarification applies to the standard in paragraph c.4.d. of OMB Circular A-21, which relates to allocation of costs for interrelated projects supported by multiple Federal awards: The interrelationship between or among projects does not have to be formally stipulated, but must be demonstrable on the basis of the following criteria. Either: (a) the theoretical approaches are interrelated; (b) studies of the same phenomena are conducted by the same or different techniques; or (c) studies of different phenomena are conducted by the same technique."

Additionally, per 2 CFR 220 Appendix A, Section C.4.d:

"(3) Direct cost allocation principles. 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)."

If the audit finding is sustained, it would place an undue burden on the University to fund an expense that was anticipated and budgeted by the University, and approved by NSF. This would not be an equitable or reasonable outcome.

- B. \$12,024 (\$7,782 plus \$4,242 associated indirect costs) for the purchase of a Mac Pro, MacBook Pro, iPad Air and computer accessories on one award.

University Response:

The University does not concur with the auditor's conclusion. The computer and related accessories were used for data analysis, manuscript preparation, and science presentations related to the award. The purchase continues to be used in support of NSF sponsored research with the receipt of an NSF FDP related award in September [REDACTED]. The new award is a continuation of the sampled award of the PI's research focus on microbial diversity and adaptation in ocean trenches.

Per 2 CFR 220, Appendix A, Section C.3, this cost should be considered reasonable as it was necessary for the performance of the sponsored agreement. Additionally, the award end date does not constitute end of the work performed for the award. As defined by NSF Grant Policy Manual, the "expiration date is the date specified in the grant notice after which expenditures may not be charged against the grant except to satisfy obligations to pay allowable project costs committed on or before that date." The NSF Grant Policy Manual recognizes that it could be determined on the last day of the award that additional expenses are needed to complete the performance of the sponsored agreement.

We would also like to emphasize that Uniform Guidance (2 CFR 200) recognized that the requirements set forth in prior circulars relating to the direct charging of computing devices was overly restrictive. Uniform Guidance has eased those restrictions by allowing the direct charging of computing devices when they are essential and benefit the project, and no longer requires that the devices be solely dedicated to the project.

AWARDEE RESPONSE

- C. \$7,231 (\$4,681 plus \$2,550 associated indirect costs) for the purchase of a Mac Pro.

University Response:

The University does not concur with the auditor's conclusion. The award budget was funded as a supplement to NSF American Recovery and Reinvestment Act (ARRA) [REDACTED]. The requested supplemental budget clearly stated that it was for support of the [REDACTED]. [REDACTED] The reason the funds were requested was for additional ship days and the use of a bigger barge. The auditor states that "The entire award budget was meant to cover the cost of securing ship time on a vessel." The auditors are ignoring the purpose of why there was the need to secure the ship time in the first place. The ship time by itself accomplishes nothing. The ship time must be in support of a larger project. It is also important to note that the cost of the actual ship time was split funded 50/50 between NSF ARRA [REDACTED] and NSF [REDACTED].

NSF [REDACTED] was awarded as a new award due to NSF's funding limitation. The project was initially proposed as a 3-year project and was funded from ARRA funds (ARRA [REDACTED]). All 3 year's funding was received in one increment. Under normal circumstances, the supplement would have been funded as a modification to the existing award. However, at the time the supplement was requested NSF no longer had ARRA funds. Because you cannot comegle funds, a new award NSF [REDACTED] was issued. NSF [REDACTED] was not funded as an independent project but was funded to support the existing ARRA [REDACTED] project.

This ship time allowed the researchers to collect a large volume of data and the purchase of the computer was reasonable and necessary to carry out the data quality control and analysis. The project continued until September 30, [REDACTED], and the NSF [REDACTED] project received the full benefit of this purchase.

We would also like to emphasize that Uniform Guidance (2 CFR 200) recognized that the requirements set forth in prior circulars relating to the direct charging of computing devices was overly restrictive. Uniform Guidance has eased those restrictions by allowing the direct charging of computing devices when they are essential and benefit the project, and no longer requires that the devices be solely dedicated to the project.

- D. \$4,255 (\$2,754 plus \$1,501 associated indirect costs) for the purchase of a Navigator Pump.

University Response:

The University does not concur with the auditor's conclusion. This expense was to repair a navigator pump, not the purchase of a new pump as asserted by the auditors. This repair was critical in achieving several stated goals of the award. The duration of use is irrelevant to the allocation of the expense because it is not a production environment where a component (pump) is used to produce a certain number of units over a defined time period. The pump repair was needed to validate data collected throughout the life of the project. Without the pump repair, the Principal Investigator (PI) would have had no conclusive verified results to report.

As stated in the NSF Grant Policy Manual, the "expiration date is the date specified in the grant notice after which expenditures may not be charged against the grant except to satisfy obligations to pay allowable project costs committed on or before that date." The Grant Policy Manual recognizes that it

AWARDEE RESPONSE

could be determined on the last day of the award that additional expenses are needed to complete the performance of the sponsored agreement. A reasonable and prudent person would understand that the end date of the award does not constitute the end of the work performed for the project. Additionally, as outlined in 2 CFR 220 Appendix A, Section C3, the expense should be recognized as a reasonable cost because it was necessary for the performance of the sponsored agreement. It would not have been reasonable to put the expense on another award when it was purchased exclusively for this award, nor would it have been reasonable to allocate the cost based on arbitrary assumptions.

- E. \$4,148 (\$2,685 plus \$1,463 associated indirect costs) for the purchase of a MacBook Pro and iMac.

University Response:

The University does not concur with the auditor's conclusion. The purchase of the computers was necessary to achieve the aims of the project. The computers were used to analyze the large data sets that were collected throughout the life of the project.

Per 2 CFR 220, Appendix A, Section C.3, this cost should be considered reasonable as it was necessary for the performance of the sponsored agreement. Additionally, the award end date does not constitute end of the work performed for the award. As defined by NSF Grant Policy Manual, the "expiration date is the date specified in the grant notice after which expenditures may not be charged against the grant except to satisfy obligations to pay allowable project costs committed on or before that date." The GPM recognizes that it could be determined on the last day of the award that additional expenses are needed to complete the performance of the sponsored agreement.

We would also like to emphasize that Uniform Guidance (2 CFR 200) recognized that the requirements set forth in prior circulars relating to the direct charging of computing devices was overly restrictive. Uniform Guidance has eased those restrictions by allowing the direct charging of computing devices when they are essential and allocable to the project, and no longer requires that the devices be solely dedicated to the project.

2. Unallowable Indirect Costs

WSB found \$7,723 in unallowable indirect costs charged to two NS awards.

- A. \$5,545 for indirect costs charged on the purchase of computer servers.

University Response:

The University concurs with auditor's conclusion. The University agrees to refund \$5,545.

- B. \$2,178 for indirect costs charged on the purchase of a broadband transducer.

University Response:

The University concurs with the auditor's conclusion. Corrective action has been taken to reverse the IDC assessment. Therefore, a refund for the \$2,178 is unnecessary.

AWARDEE RESPONSE

4. Unreasonable Participant Support Expenditures

WSB found \$4,700 charged to one NSF award for rental of the Scripps Forum facility to hold a workshop, which was not in accordance with Federal cost principles.

University Response:

The University does not concur with the auditor's conclusion.

This NSF grant was awarded to fund the EarthCube End User Workshop. The cost of the venue was specifically targeted for participant support. These costs were directly attributed to individual participants as each participant benefitted from the use of the facility/lab resource. The venue is not only a location to hold the workshop but a teaching lab with resources, including digital projection, research tools that support data sharing, networking capacity, and other research and communication capabilities in direct support and benefit to each individual workshop participant. The venue costs were meaningful and necessary expenses in support of each participant attending and contributing to the Earth Cube End User Workshop.

Additionally, to help defray the costs of each participant in the Earth Cube End User Workshop by not charging a registration fee, funds for the venue were expended. We point to the proposal regarding the use of Scripps Forum as the venue for this conference.

1. Page 8 of the proposal under Project Description, in the second paragraph 3rd sentence reads: "The physical workshop will be held at Scripps Institution of Oceanography in La Jolla, California, with virtual presence of the SERC website (src.carleton.edu),"
2. "Workshop Format & Logistics", it clearly states that the workshop will take place at the "Scripps Forum."
3. Page 37 under "Facilities" Offices and Project Support Scripps Forum. This document in the proposal gives a detailed description of the facility and its resources.

Moreover, the venue expense was limited to the duration of the workshop. It was reasonable, necessary and limited to the days of attendance at the conference. The costs were also accounted for separately under participant support to reflect the project costs components. Therefore the costs should be considered reasonable and allocable to the participant in support of their attendance to the Earth Cube Conference project. Each participant directly benefited from the rental of the facility.

5. Unallocable Transactions

WBS found \$3,890 charged to one award for the purchase of a data storage system that was not in accordance with Federal cost principles.

University Response:

The University concurs with auditor's conclusion. The University agrees to refund \$3,890.

AWARDEE RESPONSE

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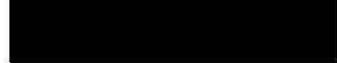
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University Response:

The University concurs with auditor's conclusion. The University agrees to refund \$3,890.

AWARDEE RESPONSE

Thank you for the opportunity to respond to the findings that were identified in your audit. If you have any questions related to the response provided, please contact me at 858-534-1334.



David Meier
Director
Audit and Management Advisory Services
University of California, San Diego

APPENDIX B

OBJECTIVES, SCOPE, AND METHODOLOGY

The audit objective was to determine whether the costs claimed complied with NSF award terms and conditions and Federal financial assistance requirements. Our audit included assessing the allowability, allocability, and reasonableness of costs claimed by SIO through the Award Cash Management Service for the 3-year period beginning April 1, 2012, through March 31, 2015. The audit was performed in accordance with *Government Auditing Standards* for performance audits.

To aid in determining reasonableness, allowability, and allocability of costs, we obtained from SIO all award transactions comprising all costs claimed to NSF during the period of April 1, 2012, through March 31, 2015. This provided an audit universe of approximately \$110 million, in approximately 63,000 transactions, across 291 individual NSF awards. For transaction testing we judgmentally selected 283 transactions totaling \$2.0 million and utilized a data analytics approach to identify potential risk areas. We also performed additional, non-transaction based tests as we deemed necessary.

Our work required reliance on computer-processed data obtained from SIO and NSF. At our request, SIO provided detailed transaction data for all costs charged to NSF awards during our audit period. We also extracted award data directly from NSF's various data systems. To select transactions for further review, we designed and performed automated tests of SIO 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 SIO by: 1) comparing costs charged to NSF award accounts within SIO's accounting records to reported net expenditures, as reflected in SIO's 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 SIO used to extract transaction data from its accounting records and systems.

Based on our testing, we found SIO 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 years 2014 and 2015 found no reportable instances in which NSF's financial management systems did not substantially comply with applicable requirements.

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

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

- 2 CFR Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*;
- 2 CFR Part 220, *Cost Principles for Educational Institutions* (OMB Circular A-21);
- 2 CFR Part 215, *Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations* (OMB Circular A-110);
- NSF Proposal and Award Policies and Procedures Guide (includes the *Grant Proposal Guide* and *Award and Administration Guide*);
- NSF Award Specific Terms and Conditions; and
- NSF Federal Demonstration Partnership Terms and Conditions.

APPENDIX C

Questioned Cost Summary by Award

Award ID	Amount Questioned	Overhead Questioned	Total Questioned
Finding 1 – Equipment, Materials, and Supplies Unreasonable Purchases Near Award Expiration			
0944220	\$ 43,577	\$ 23,968	\$ 67,545
0827051	7,782	4,242	12,024
1132984	4,681	2,550	7,231
1013423	2,754	1,501	4,255
0948338	2,685	1,463	4,148
Finding 1 Total	61,479	33,724	95,203
Finding 2 – Unallowable Indirect Costs			
1220630	-	5,545	5,545
1440580	-	2,178	2,178
Finding 2 Total	-	7,723	7,723
Finding 3 – Unreasonable Participant Support Expenditures			
1313870	4,700	-	4,700
Finding 3 Total	4,700	-	4,700
Finding 4 – Unallocable Transactions			
1061050	3,296	594	3,890
Finding 4 Total	\$ 3,296	\$ 594	\$ 3,890