

**NATIONAL SCIENCE FOUNDATION**  
4201 Wilson Boulevard  
ARLINGTON, VIRGINIA 22230



**OFFICE OF  
INSPECTOR GENERAL**

**MEMORANDUM**

Date: March 31, 2011

To: Mary F. Santonastasso, Director  
Division of Institution and Award Support

Karen Tiplady, Director  
Division of Grants and Agreements

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

Subject: Audit Report No. OIG-11-012  
Boston University

Attached is the final audit report, prepared by McBride, Lock & Associates, an independent public accounting firm, on the audit of NSF Award Number ATM-0120950 awarded to the Trustees of Boston University (Boston University). The audit covers NSF-funded costs claimed from August 1, 2002 to December 31, 2009, totaling approximately \$27.8 million in costs claimed and \$8.7 million in claimed cost share for the award.

Boston University was selected for audit because of the high dollar value and number of NSF awards, the collaborative nature of many of those awards, and deficiencies reported in a 2005 NSF program office site visit report. The award was selected for audit because of the complexities associated with the coordination and monitoring of 13 participants, coupled with the deficiencies reported in a 2005 NSF program office site visit report in the areas of subaward monitoring and time and effort reporting. The award provides for the creation of the Center for Integrated Space Weather Modeling (CISM) at Boston University. Boston University, as the lead institution, coordinates and manages the efforts of multiple partners, including 13 other academic institutions and industries.

Except for \$412,400 in questioned subaward costs and \$174,397 in questioned cost sharing, the auditors determined that the costs claimed by TBU for the NSF award appear fairly stated and are allowable, allocable, and reasonable. The auditors also noted that, of the two findings made in NSF's 2005 program site visit, one finding identified that one of Boston University's subawardees was submitting claims for gifts which cost type is unallowable under federal

regulations. The auditors found that all three of Boston University's subawardees tested were submitting claims for unallowable and unsupported costs. The lack of improvement in the area of subawardee monitoring is significant because subaward costs are reported by 13 subawardees totaling \$19.9 million or 72% of the total \$27.8 million in costs claimed under this NSF award.

The auditors also noted three compliance and internal control deficiencies in TBU's financial management practice that contributed to these questioned costs and cost share that if not corrected, could impact current and future NSF awards. Specifically:

- The TBU did not have policies and procedures to ensure adequate fiscal monitoring of subaward costs or subawardee cost share charged to the CISM award. Specifically, the University did not have a formal plan for monitoring subawardees, such as performing effective annual review of subawardee's A-133 audit reports; obtaining supporting documentation; and performing desk reviews and site visits. Also, TBU did not perform an analysis such as a risk assessment of its subawardees to determine which monitoring procedures should be performed for each subawardee. The University relied on the controls and self-assessments made by the subawardees to ensure subawardee costs are reasonable, allowable, and allocable to the NSF award and are in compliance with award terms. The auditors performed on-site audit procedures at three TBU subawardees that identified noncompliance with NSF requirements and questioned costs at each location.

For example, the auditors found that the subawardees improperly claimed bond and associated interest payments charged as depreciation; unapproved payroll charges; unapproved foreign travel; excessive and unnecessary side trips to resort areas, including charges for hotels, rental cars, and per diem; duplicate payments; unallowable management fees; and indirect costs for telephone, postage and shipping charges claimed as direct costs on the NSF award. Additionally, costs not required to accomplish award objectives were charged to the award, such as conference give-aways in the form of 700 calculators, 1,000 mouse pads and 300 tote bags emblazoned with the CISM logo, translation of UCAR's Windows to the Universe web site to Spanish and a Visa application fee for entry into the United States. As a result, the auditors questioned \$412,400 of costs and \$174,397 of cost share claimed. Considering that the CISM award includes 13 participating entities with subaward costs totaling \$19.9 million or 72% of the total \$27.8 million in costs claimed under the NSF award, effective monitoring of subaward expenditures is a critical internal control to ensure overall compliance with NSF and Office of Management and Budget requirements. Required routine subaward monitoring could prevent or identify any additional unallowable claimed subaward costs.

- The University does not have adequate internal controls to ensure that cost share is properly identified, recorded, reported, and monitored. Deficiencies were identified in the procedures for identifying and recording cost share in the University's accounting system; monitoring and reporting subawardee cost share; and reporting accurate cost share amounts to the NSF. The auditors determined that cost share expenses are not recorded in separate specifically identifiable accounts in the accounting system, cost share as certified by TBU for the subawardees was not in agreement with cost share reported on the cost share reports from the subawardees, and, costs reported as cost share items included

unallowable costs for \$174,397 from two subawardees. This condition occurred because policies and procedures regarding cost share were minimal and were not effective to ensure these costs were properly accounted for, recorded, and reported. As a result, the University's internal control over cost sharing does not provide assurance that the cost sharing expenditures reported and claimed by TBU or its subawardees are accurate, allowable, allocable, and reasonable or that TBU's program objectives are being met as intended.

- The University's system of internal controls over the personnel/payroll function is not adequate to prevent the continuation of payroll checks or deposits after an employee has terminated their employment with the University. Also, internal controls at CISM are not adequate to ensure that sick leave is accurately recorded and reported for CISM employees. Specifically, there is no process or requirement in place requiring notification of a party outside of the department where they work, such as the University's Office of Human Resources, when a non-student employee is terminated. Further, while the University's personnel leave policy requires all departments to maintain records of employees' accumulated sick leave balances, such records are not maintained for CISM employees. These conditions occurred because of a lack of emphasis on the importance of internal controls over unauthorized compensation for terminated personnel, and, improper sick leave practices and reporting for CISM employees. The lack of effective internal controls over the payroll/personnel functions and employee leave practices place NSF funds at risk and may result in costs claimed that are not reasonable, allowable, and necessary for the NSF award.

These noncompliance and internal control weaknesses could have a significant impact on the University's ability to record, process, summarize and report financial data, and effectively and efficiently administer its NSF funds in a manner that is consistent with Federal and NSF requirements. If Boston University fails to address these compliance and internal control weaknesses, improper costs and unallowable cost share may continue to be charged on this award, the other existing \$111.7 million of NSF awards, and on future NSF awards.

To address these compliance and internal control deficiencies, the auditors recommend that the Director of NSF's Division of Institution and Award Support (DIAS) address and resolve the following recommendations made to Boston University. It is recommended that Boston University (1) establish comprehensive risk-based subawardee evaluation and monitoring procedures for Boston University's NSF-sponsored programs and adjust any erroneous subawardee management fee claims made on the award since its inception; (2) require designated University personnel to review cost share reports to ensure that sufficient detail is provided to allow a meaningful evaluation of the reasonableness of reported amounts, reconcile cost share recorded in the general ledger to cost share reported by Boston University and the subawardees, and, provide written procedures and training to the designated University personnel regarding the correct process for properly evaluating, recording, and reporting all committed cost share associated with sponsored awards; and, (3) develop written policies and procedures that address accounting for employee terminations and employee sick leave, and implement methods to ensure adherence to the approved policies and procedures to ensure compliance with Federal requirements.

Boston University, in its response , generally concurred with some of the recommendations but did not agree with the questioned costs. Boston University indicated it was taking corrective actions to develop and implement subaward monitoring policies and procedures. They also indicated that they were taking corrective actions to strengthen policies and procedures for the managing, recording and reporting of cost share and employee sick leave. However, they did not agree that existing policies and procedures for employee termination is inadequate. Boston University's response is included in its entirety in Appendix A.

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.

We are providing copies of this memorandum to the Deputy Assistant Director, Directorate for Geosciences within the Office of the Assistant Director; and, the Division and Program Directors of Atmospheric & Geospace Sciences (GEO/AGS). The responsibility for audit resolution rests with the Division of Institution and Award Support, Cost Analysis and Audit Resolution Branch (CAAR). Accordingly, we ask that no action be taken concerning the report's findings without first consulting CAAR at 703-292-8244.

#### OIG Oversight of Audit

To fulfill our responsibilities under Government Auditing Standards, the Office of Inspector General:

- Reviewed McBride, Lock & Associates 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 McBride, Lock & Associates and NSF officials, as necessary, to discuss audit progress, findings, and recommendations;
- Reviewed the audit report, prepared by McBride, Lock & Associates to ensure compliance with Government Auditing Standards; and
- Coordinated issuance of the audit report.

McBride, Lock & Associates is responsible for the attached auditor's report on Boston University and the conclusions expressed in the report. We do not express any opinion on the Schedule of Award Costs, internal control, or conclusions on compliance with laws and regulations.

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 Jannifer Jenkins at 703-292-4996.

Attachment

cc: Margaret Cavanaugh, Deputy Assistant Director, GEO/OAD  
Michael C. Morgan, Division Director, GEO/AGS

Robert M. Robinson, Program Director, GEO/AGS

**The Trustees of Boston University-**  
**Boston, MA**  
One Silber Way  
Boston, MA 02215

Independent Auditors' Reports on  
National Science Foundation  
Award Number ATM-0120950  
Center for Integrated Space Weather  
Modeling (CISM)

For the Period from August 1, 2002 to December 31, 2009

**McBride, Lock & Associates**  
1111 Main Street  
Suite 900  
Kansas City, MO 64105

## EXECUTIVE SUMMARY

The National Science Foundation (NSF), Office of Inspector General (OIG), engaged McBride, Lock & Associates to perform an audit on \$27,795,384 in costs claimed and \$8,713,453 in cost sharing claimed as reported on the December 31, 2009 Federal Financial Report (FFR) and cost sharing reports submitted to NSF by the Trustees of Boston University (TBU or University) for NSF award number ATM-0120950.

TBU is a major grant recipient with 228 active awards totaling over \$139.5 million from NSF as reported in the TBU's 2009 Annual Report. The award selected for audit is a cooperative agreement made to TBU to establish a Center for Integrated Space Weather Modeling (CISM). The goal of the CISM, is to develop computer models that can predict space weather from the surface of the sun to the Earth's surface and ultimately to better protect the US technological systems that are affected by conditions in the space environment. In this effort, TBU as the lead institution, coordinates and manages the efforts of multiple partners, including other academic institutions and industries. The award was selected for audit because of the complexities associated with the coordination and monitoring of 13 participants, coupled with the deficiencies reported in a 2005 NSF program office site visit report in the areas of subaward monitoring and time and effort reporting.

The objectives of this engagement was to determine whether the costs and cost share claimed by TBU and its subawardees for this NSF award appear fairly stated in the TBU's Schedule of Award Costs and to identify weaknesses in TBU's internal control over financial reporting that could have a direct and material effect on TBU's ability to properly administer, account for, and monitor its NSF awards. In addition, we were to determine whether TBU adequately monitors its subawardees and ensures that recommendations made in NSF's 2005 program site visit have been satisfactorily resolved.

Except for \$412,400 in questioned subaward costs and \$174,397 in questioned cost sharing, we determined that the costs claimed by TBU for the NSF award appear fairly stated and are allowable, allocable, and reasonable. Specifically, we questioned \$412,400 claimed by three of TBU's subawardees because of charges claimed for unallowable, unsupported, unallocable and unreasonable costs, which are discussed further below. We also questioned cost share for \$174,397 because one subawardee claimed conference discounts as cost share for certain expenses which do not assist in achieving the goals of the NSF award, and another subawardee claimed consultant costs in excess of allowable rates and without adequate documentation to support expenses claimed. We noted that, of the two findings made in NSF's 2005 program site visit, one finding identified that one of TBU's subawardees was submitting claims for gifts which cost type is unallowable under federal regulations. Our audit found that all three of TBU's subawardees tested were submitting claims for unallowable and unsupported costs. The lack of improvement in the area of subawardee monitoring is significant because subaward costs are reported by 13 subawardees totaling \$19.9 million or 72% of the total \$27.8 million in costs claimed under this NSF award.

We also noted three compliance and internal control deficiencies in TBU's financial management practice that contributed to these questioned costs and cost share that if not corrected, could impact current and future NSF awards. Specifically:

- The TBU did not have policies and procedures to ensure adequate fiscal monitoring of subaward costs or subawardee cost share charged to the CISM award. Specifically, the University did not have a formal plan for monitoring subawardees, such as performing effective annual review of subawardee's A-133 audit reports; obtaining supporting documentation; and performing desk

reviews and site visits. Also, TBU did not perform an analysis such as a risk assessment of its subawardees to determine which monitoring procedures should be performed for each subawardee. The University relied on the controls and self-assessments made by the subawardees to ensure subawardee costs are reasonable, allowable, and allocable to the NSF award and are in compliance with award terms. We performed on-site audit procedures at three TBU subawardees that identified noncompliance with NSF requirements and questioned costs at each location.

For example, we found the subawardees improperly claimed bond and associated interest payments charged as depreciation; unapproved payroll charges; unapproved foreign travel; excessive and unnecessary side trips to resort areas, including charges for hotels, rental cars, and per diem; duplicate payments; unallowable management fees; and indirect costs for telephone, postage and shipping charges claimed as direct costs on the NSF award. Additionally, costs not required to accomplish award objectives were charged to the award, such as conference giveaways in the form of 700 calculators, 1,000 mouse pads and 300 tote bags emblazoned with the CISM logo, translation of UCAR's Windows to the Universe web site to Spanish and a Visa application fee for entry into the United States. As a result, we questioned \$412,400 of costs and \$174,397 of cost share claimed. Considering that the CISM award includes 13 participating entities with subaward costs totaling \$19.9 million or 72% of the total \$27.8 million in costs claimed under the NSF award, effective monitoring of subaward expenditures is a critical internal control to ensure overall compliance with NSF and Office of Management and Budget requirements. Required routine subaward monitoring could prevent or identify any additional unallowable claimed subaward costs.

- The University does not have adequate internal controls to ensure that cost share is properly identified, recorded, reported, and monitored. Deficiencies were identified in the procedures for identifying and recording cost share in the University's accounting system; monitoring and reporting subawardee cost share; and reporting accurate cost share amounts to the NSF. We determined that cost share expenses are not recorded in separate specifically identifiable accounts in the accounting system, cost share as certified by TBU for the subawardees was not in agreement with cost share reported on the cost share reports from the subawardees, and, costs reported as cost share items included unallowable costs for \$174,397 from two subawardees. This condition occurred because policies and procedures regarding cost share were minimal and were not effective to ensure these costs were properly accounted for, recorded, and reported. As a result, the University's internal control over cost sharing does not provide assurance that the cost sharing expenditures reported and claimed by TBU or its subawardees are accurate, allowable, allocable, and reasonable or that TBU's program objectives are being met as intended.
- The University's system of internal controls over the personnel/payroll function is not adequate to prevent the continuation of payroll checks or deposits after an employee has terminated their employment with the University. Also, internal controls at CISM are not adequate to ensure that sick leave is accurately recorded and reported for CISM employees. Specifically, there is no process or requirement in place requiring notification of a party outside of the department where they work, such as the University's Office of Human Resources, when a non-student employee is terminated. Further, while the University's personnel leave policy requires all departments to maintain records of employees' accumulated sick leave balances, such records are not maintained for CISM employees. These conditions occurred because of a lack of emphasis on the importance of internal controls over unauthorized compensation for terminated personnel, and, improper sick leave practices and reporting for CISM employees. The lack of effective

internal controls over the payroll/personnel functions and employee leave practices place NSF funds at risk and may result in costs claimed that are not reasonable, allowable, and necessary for the NSF award.

These noncompliance and internal control weaknesses could have a significant impact on the University's ability to record, process, summarize and report financial data, and effectively and efficiently administer its NSF funds in a manner that is consistent with Federal and NSF requirements. If TBU fails to address these compliance and internal control weaknesses, improper costs and unallowable cost share may continue to be charged on this award, the other existing \$111.7 million of NSF awards, and on future NSF awards.

To address these compliance and internal control deficiencies, we recommended that NSF's Director of the Division of Institution and Award Support (DIAS) address and resolve the following recommendations made to TBU: (1) establish comprehensive risk-based subawardee evaluation and monitoring procedures for TBU's NSF-sponsored programs and adjust any erroneous subawardee management fee claims made on the award since its inception; (2) require designated University personnel to review cost share reports to ensure that sufficient detail is provided to allow a meaningful evaluation of the reasonableness of reported amounts, reconcile cost share recorded in the general ledger to cost share reported by TBU and the subawardees, and, provide written procedures and training to the designated University personnel regarding the correct process for properly evaluating, recording, and reporting all committed cost share associated with sponsored awards; and, (3) develop written policies and procedures that address accounting for employee terminations and employee sick leave, and implement methods to ensure adherence to the approved policies and procedures to ensure compliance with Federal requirements.

## **THE TRUSTEES OF BOSTON UNIVERSITY RESPONSE**

Boston University takes its responsibility for stewardship over federal funding very seriously. As such, we have devoted significant resources since this audit commenced more than a year ago to ensure that the audit of NSF Award ATM-0120950 accurately represents our internal control environment. The unreasonably short time period between our receipt of the draft report on March 3, 2011 and the arbitrary deadline of March 23, 2011 provided to TBU to provide a draft response significantly limits our ability to validate the accuracy of the questioned costs referenced throughout this report as well as provide an adequate response. While we understand that audit issues are typically resolved during Audit Resolution, as stated in our further responses, we believe some of these findings are without merit and are concerned that erroneous report findings could unfairly harm the University's reputation. As referenced in this report, all of the questioned costs are subawardee expenses which will require communication and thorough review of documentation with the subawardees to validate the accuracy of the findings. To ensure the NSF OIG and TBU obtain the highest quality results and the objectives of the audit are achieved, we believe additional time of up to a month should be provided to develop a fully considered and accurate management response. Subject to its request for this additional time, TBU has provided responses to the best of its ability to each of the three findings contained herein.

## **Auditors' Comments**

Boston University generally concurred with most of the internal control recommendations but did not agree with all the questioned costs. Each of the three auditors' internal control findings was identified and discussed with officials of Boston University during the initial internal control assessment phase of this audit which occurred in April of 2010. In fact, these internal control weaknesses triggered the need to expand audit testwork and conduct site visits at three subawardees, which identified the questioned costs presented in this report. The internal control findings were again discussed and summarized in writing at the conclusion of substantive audit fieldwork at BU in early September, 2010. It is not unreasonable to expect Boston University to respond to findings of deficient internal controls which have been known to them for many months.

Boston University's response to each finding is included in the text of the report following the auditors' recommendations. Our comments on Boston University's responses follow each of their responses. Boston University's response is also presented in its entirety in Appendix B of this report.

The findings in this report should not be closed until NSF has determined that all the recommendations have been adequately addressed and the proposed corrective actions have been implemented.

For a complete discussion of these findings, refer to the *Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Schedules Performed in Accordance with Government Auditing Standards*.

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## Acronyms

CISM	Center for Integrated Space Weather Modeling
NCAR	National Center for Atmospheric Research
NSF	National Science Foundation
OIG	Office of Inspector General
OMB	Office of Management and Budget
OSP	Office of Sponsored Programs
PAFO	Post Award Financial Operations
PI	Principal Investigator
RA	Research Accountant
STC	Science and Technology Center
TBU	Trustees of Boston University
UCAR	University Corporation for Atmospheric Research
CU-Boulder	University of Colorado at Boulder

**INTRODUCTION**

## **BACKGROUND**

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We were engaged to audit the funds awarded by the National Science Foundation to the Trustees of Boston University (TBU or University) under award number ATM-0120950, for the period of August 1, 2002 to December 31, 2009. The University, as a federal awardee, is required to follow the cost principles specified in 2 CFR Part 220 (OMB Circular A-21), *Cost Principles for Educational Institutions* and the federal administrative requirements contained in 2 CFR Part 215 (OMB Circular A-110), *Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations*.

The University is a private research university and land-grant institution with administrative offices located in Boston, Massachusetts and conducts education, research, public service and related activities at its Charles River Campus and at the Medical Center Campus. Under the governance of a Board of Trustees, TBU has provided teaching, research and service to Massachusetts and the nation since 1869. TBU serves approximately 33,000 students on its campuses.

As reported in the TBU's 2009 annual report, the University had 228 active NSF awards totaling over \$139.5 million. The TBU's NSF award portfolio collaborations include groups of universities, non-profit organizations, and/or contractors working together on a common initiative with one or more of the organizations functioning as the coordinator of all financial administration. Collaborative awards often have high inherent audit risks because of the challenges the awardees face to adequately monitor and account for NSF award funds. Many of the collaborating parties have various administrative and financial systems in place which require adequate internal control, authorization, communication, and award management processes in operation to ensure that federal funds are spent in accordance with NSF and Federal requirements and in support of the NSF programs.

The TBU was selected for audit because of the high dollar value and number of NSF awards, the collaborative nature of many of those awards, and deficiencies reported in a 2005 NSF program office site visit report. Specifically, that site visit review identified weaknesses in subawardee monitoring and untimely effort reporting,

TBU's NSF Award No. ATM-0120950, which was selected for audit, was awarded to TBU for the period August 1, 2002 to July 31, 2012 in the amount of \$32,384,375 with a cost share requirement of \$7,908,358. The award provides for the creation of the Center for Integrated Space Weather Modeling (CISM) at TBU. The purpose of the Center is to develop computer models that can predict space weather from the surface of the sun to the Earth's surface and ultimately to better protect the US technological systems that are affected by conditions in the space environment. TBU, as the lead institution, coordinates and manages the efforts of multiple partners, including 13 other academic institutions and industries. Cumulative disbursements for Award No. ATM-0120950, reported to NSF through December 31, 2009, were \$27,795,384 of which approximately \$20 million were subaward costs. Cost share claimed totaled \$8,713,453.

## **AUDIT OBJECTIVES, SCOPE, AND METHODOLOGY**

At the request of the NSF Office of Inspector General (OIG), McBride, Lock & Associates conducted an audit of NSF Award Number ATM-0120950 granted to the University.

The objectives of our audit were to:

1. Determine whether TBU's system of internal control over administering its NSF awards is adequate to account for and ensure compliance with OMB Circular and NSF award requirements.
2. Identify and report instances of noncompliance with laws, regulations, and the provisions of the award agreement(s) and weaknesses in the awardee's internal controls over compliance that could have a direct and material effect on the Schedules of Award Costs and the awardee's ability to properly administer, account for, and manage its NSF awards.
3. Determine whether the University's Schedule of Award Costs presents fairly, in all material respects, the costs claimed on the Federal Financial Reports (FFR) in conformity with NSF-OIG's *Audit Guide* and the terms and conditions of the NSF award.
4. Determine and report on whether TBU adequately monitors its subawards and if recommendations made in NSF's 2005 site visit report have been satisfactorily resolved.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America, the standards applicable to financial audits contained in the *Government Auditing Standards* (2007 revision) issued by the Comptroller General of the United States, and the guidance provided in the *National Science Foundation OIG Audit Guide, August 2007*, as applicable. Those standards and the *National Science Foundation OIG Audit Guide* require that we plan and perform the audit to obtain reasonable assurance about whether the amounts claimed to the National Science Foundation as presented in the Schedule of Award Costs (Schedule A-1), are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the Schedule of Award Costs. An audit also includes assessing the accounting principles used and significant estimates made by the Trustees of Boston University, as well as evaluating the overall financial schedule presentation. We believe that our audit provides a reasonable basis for our opinion.

**AUDITORS' REPORTS, FINDINGS  
AND RECOMMENDATIONS**

## INDEPENDENT AUDITORS' REPORT ON FINANCIAL SCHEDULES

National Science Foundation  
Office of Inspector General  
4201 Wilson Boulevard  
Arlington, Virginia 22230

We have audited the costs claimed by the Trustees of Boston University to the National Science Foundation (NSF) on the Federal Financial Reports (FFRs) for the NSF award listed below. In addition, we audited the amount of cost sharing claimed on the award. The FFRs, as presented in the Schedule of Award Costs (Schedule A) are the responsibility of the Trustees of Boston University's management. Our responsibility is to express an opinion on the Schedule of Award Costs (Schedule A) based on our audit.

Award Number: ATM-0120950  
Award Period: August 1, 2002 to July 31, 2012  
Audit Period: August 1, 2002 to December 31, 2009

We conducted our audit in accordance with auditing standards generally accepted in the United States of America, the standards applicable to financial audits contained in *Government Auditing Standards* (2007 revision) issued by the Comptroller General of the United States, and the guidance provided in the *National Science Foundation OIG Audit Guide* (August 2007), as applicable. Those standards and the *National Science Foundation OIG Audit Guide* require that we plan and perform the audit to obtain reasonable assurance about whether the amounts claimed to the National Science Foundation as presented in the Schedule of Award Costs (Schedule A) are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the Schedule of Award Costs (Schedule A). An audit also includes assessing the accounting principles used and the significant estimates made by the Trustees of Boston University's management, as well as evaluating the overall financial schedule presentation. We believe that our audit provides a reasonable basis for our opinion.

The Schedule of Questioned Costs (Schedule B) explains the \$412,400 of total claimed NSF-funded costs that we questioned for allowability under the NSF award agreement. These questioned costs represent unallowable, unsupported, unallocable and unreasonable payments to TBU's subawardees. The Schedule of Cost Sharing (Schedule C) explains the \$174,397 of questioned cost sharing. The questioned cost sharing represents vendor discounts claimed as cost sharing by TBU's subawardees. Questioned costs are (1) costs for which there is documentation that the recorded costs were expended in violation of the laws, regulations or specific award conditions, (2) costs that require additional support by the awardee or (3) costs that require interpretation of allowability by NSF's Division of Institution

and Award Support. The final determination as to whether such costs are allowable will be made by NSF. The ultimate outcome of this determination cannot presently be determined. Accordingly, no adjustment has been made to costs claimed for any potential disallowance by NSF.

In our opinion, except for the \$412,400 of questioned NSF-funded costs and \$174,397 of questioned cost share, the Schedule of Award Costs (Schedule A) referred to above presents fairly, in all material respects, the costs claimed on the Federal Financial Reports — Federal Share of Net Disbursements and cost sharing claimed, for the period of August 1, 2002 through December 31, 2009, in conformity with the provisions of the *National Science Foundation OIG Audit Guide, NSF Grant Policy Manual*, terms and conditions of the NSF award and on the basis of accounting described in the Notes to the Financial Schedules, which is a comprehensive basis of accounting other than generally accepted accounting principles. This schedule is not intended to be a complete presentation of financial position of TBU in conformity with accounting principles generally accepted in the United States of America.

In accordance with *Government Auditing Standards* and the provisions of the *National Science Foundation OIG Audit Guide*, we have also issued our report dated October 15, 2010, on our consideration of TBU's internal control over financial reporting and our tests of TBU's compliance with certain provisions of laws, regulations, and NSF award terms and conditions and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be considered in assessing the results of our audit.

Our audit was conducted for the purpose of forming an opinion on the Schedule of Award Costs (Schedule A). The accompanying schedules B, C, and D are presented for purposes of additional analysis, as required by the *National Science Foundation OIG Audit Guide*. Such information has been subjected to the auditing procedures applied in the audit of the Schedule of Award Costs and, in our opinion, is fairly stated, in all material respects, in relation to the Schedule of Award Costs.

This report is intended solely for the information and use of the Trustees of Boston University's management, the National Science Foundation, the University's cognizant federal audit agency, the Office of Management and Budget, and the Congress of the United States and is not intended to be, and should not be used by anyone other than these specified parties.

McBride, Lock & Associates  
October 15, 2010

**REPORT ON  
INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND  
OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL SCHEDULES  
PERFORMED IN ACCORDANCE WITH GOVERNMENT AUDITING STANDARDS**

National Science Foundation  
Office of Inspector General  
4201 Wilson Boulevard  
Arlington, Virginia 22230

We have audited the costs claimed as presented in the Schedule of Award Costs (Schedule A), which summarizes the financial reports submitted by the Trustees of Boston University to the National Science Foundation (NSF), and claimed cost sharing, for the award and period listed below and have issued our report thereon dated October 15, 2010.

Award Number: ATM-0120950  
Award Period: August 1, 2002 to July 31, 2012  
Audit Period: August 1, 2002 to December 31, 2009

We conducted our audit of the Schedule of Award Costs as presented in Schedule A in accordance with auditing standards generally accepted in the United States of America, the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States (2007 revision); and the guidance provided in the *National Science Foundation OIG Audit Guide* (August 2007), as applicable.

**INTERNAL CONTROL OVER FINANCIAL REPORTING**

In planning and performing our audit of the Schedule of Award Costs (Schedule A) for the period August 1, 2002 to December 31, 2009, we considered the Trustees of Boston University's internal control over financial reporting as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial schedule, but not for the purpose of expressing an opinion on the effectiveness of the Trustees of Boston University's internal control over financial reporting. Accordingly, we do not express an opinion on the effectiveness of the Trustees of Boston University's internal control over financial reporting.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A material weakness is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis.

Our consideration of internal control over financial reporting was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting that might be deficiencies, significant deficiencies or material weaknesses. We did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses, as defined above. However, we identified certain deficiencies in internal control over financial reporting, as discussed in Finding Nos. 1, 2 and 3 in the Schedule of Findings and Recommendations below, that we consider to be significant deficiencies in internal control over financial reporting. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

## **COMPLIANCE AND OTHER MATTERS**

As part of obtaining reasonable assurance about whether the Trustees of Boston University's financial schedules are free of material misstatement, we performed tests of the University's compliance with certain provisions of applicable laws, regulations, and NSF award terms and conditions, noncompliance with which could have a direct and material effect on the determination of financial schedule amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests of compliance disclosed certain instances of noncompliance that are required to be reported under *Government Auditing Standards* and the *National Science Foundation OIG Audit Guide* and are described as Finding Nos. 1, 2 and 3 in the Schedule of Findings and Recommendations below.

The Trustees of Boston University responses to the findings identified in our audit are described after each recommendation in the accompanying Schedule of Findings and Responses presented below and are included in their entirety in Appendix B. We did not audit the Trustees of Boston University's response and, accordingly, we express no opinion on it.

## **SCHEDULE OF FINDINGS AND RECOMMENDATIONS**

### **Finding No. 1: Lack of Adequate Fiscal Monitoring of Subawardees**

During the period of award ATM-0120950 and at the time of our audit, the TBU did not have policies and procedures to ensure adequate fiscal monitoring of subaward costs or subawardee cost share charged to the CISM award. In response to auditors' observations regarding weaknesses in this area, TBU undertook to improve policies and procedures with respect to subaward monitoring. These policies and procedures, if implemented properly, should resolve many of the matters noted during this audit. However, as we have not audited the implementation of these policies and procedures or the sufficiency of them, or any other controls and procedures subsequent to our audit period which ended December 31, 2009, this report does not address changes to policies and procedures that may have been transpiring during or subsequent to our audit.

Specifically, during the award period the University did not have a formal plan for monitoring subawardees, such as performing effective annual review of subawardee's A-133 audit reports; obtaining supporting documentation; and performing desk reviews and site visits. Also, TBU did not perform an analysis such as a risk assessment of its subawardees to determine which monitoring procedures should be performed for each subawardee. The University, to a great extent, relied on the controls and self-

assessments made by the subawardees to ensure that subawardee costs were reasonable, allowable, and allocable to the NSF award and were in compliance with award terms. We performed on-site audit procedures at three TBU subawardees that identified noncompliance with NSF requirements and questioned costs at each location. As a result, we questioned \$412,400 of costs and \$174,397 of cost share claimed. Considering that the CISM award involves 13 participating entities, with subaward costs totaling \$19.9 million or 72% of the total \$27.8 million in costs claimed under the NSF award, effective monitoring of subaward expenditures is a critical internal control to ensure overall compliance with NSF and OMB requirements. Required routine subaward monitoring could prevent or identify any additional unallowable claimed subaward costs.

2 CFR 215, Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations (OMB Circular A-110) requires prime recipients of sponsored awards to establish a system of internal controls to ensure that subawardees use federal funds in accordance with laws, regulations and contract/grant agreements. 2 CFR 215, Subpart C, §215.51, Monitoring and Reporting Program Performance, states that:

“(a) Recipients are responsible for managing and monitoring each project, program, subaward, function or activity supported by the award. Recipients shall monitor subawards to ensure subawardees have met the audit requirements as delineated in Section .26.”

Further, OMB Circular A-133, Audits of States, Local Governments and Non-Profit Organizations, also requires federal awardees to monitor activities of subawardees to ensure compliance with program and administrative requirements and to ensure that performance goals are achieved. TBU, as a pass-through entity, is responsible for monitoring subawardee activities to provide reasonable assurance that the subawardee administers federal awards in compliance with federal requirements; for ensuring required audits are performed and requiring subawardees to take prompt corrective action on any audit finding; and for evaluating the impact of subawardee activities on its ability to comply with applicable federal regulations.

OMB Circular A-133, Subpart D 400 (d) prescribes certain procedures that a pass-through entity (the University) must perform with respect to its subawardees. With respect to monitoring and resulting decisions, A-133 requires the University to:

“(3) Monitor the activities of subrecipients as necessary to ensure that Federal awards are used for authorized purposes in compliance with laws, regulations, and the provisions of contracts or grant agreements and that performance goals are achieved.

(4) Ensure that subrecipients expending \$300,000 (*\$500,000 for fiscal years ending after December 31, 2003*) or more in Federal awards during the subrecipient's fiscal year have met the audit requirements of this part for that fiscal year.

(5) Issue a management decision on audit findings within six months after receipt of the subrecipient's audit report and ensure that the subrecipient takes appropriate and timely corrective action.”

The NSF Grant Policy Manual, Section 301, also specifies that grantees are responsible for managing and monitoring subaward performance and exercising prudent management of all expenditures and actions affecting the grant.

The University's own guidance on subawardee monitoring is minimal and consisted primarily of desk procedures pertaining to the review and processing of subawardee invoices.

### TBU's Subawardee Selection Process

The University's procedures performed for subawardee selection and acceptance to ensure that subawardees selected have adequate financial grant management practices were not sufficiently comprehensive. The decision by TBU to involve another entity as a subawardee on a federal award to a great extent relies on the controls and self-assessments made by the subawardees to ensure that subaward costs are reasonable, allowable, and allocable to the NSF award rather than on information that has been verified by TBU staff .

Interviews with the Office of Sponsored Programs (OSP) revealed that the evaluation process for potential subawardees differs depending on whether the entity is or is not presently receiving an A-133 audit. We found, however, that in either case the risk assessment of potential subawardees performed by this office is inadequate.

TBU requires entities that are not required to obtain an A-133 audit, to complete subawardee risk assessment questionnaires addressing the adequacy of their financial management and accounting systems to administer Federal awards. The questionnaire asks the entity to represent that it has a financial management system which provides records that can identify the source and application of funds for award supported activities; provides for the control and accountability of project funds, property and other assets; and has formal, written policies that address personnel costs, travel, purchasing and conflicts of interest. Personnel in OSP review these questionnaires, however, policies do not require them to perform additional procedures to verify the information reported on the questionnaires. Thus, these procedures to evaluate the suitability of potential subawardees are of limited effectiveness.

Prior to 2009 the University did not have a standard set of terms and conditions for subawardee agreements. In 2009 a Research Subaward Agreement, dated June 2009, was adopted for use with subawardees who are required to receive an A-133 audit. This agreement sets forth the terms of the subaward and requires the potential subawardee to certify that it "complies with A-133 and that it will notify Prime Recipient of completion of required audits and of any adverse findings which impact this subaward." The subrecipient also assures that "it will comply with applicable statutory and regulatory requirements....found at <http://www.nsf.gov/bfa/dias/policy/rtc/appc.pdf>." Copies of A-133 audit reports are only required if the *subawardee believes* the audit includes any adverse findings *which impact this subaward*.

There were no policies or procedures in place that provide for more in-depth subawardee evaluation beyond accepting the representations of organizations subject to an A-133 audit, or relying on the judgment of the subawardee as to whether A-133 findings impact the subaward.

The University's monitoring procedures did not require that a Risk Assessment Questionnaire be completed for organizations subject to A-133 audits. There were no requests for copies of *all* A-133 audit reports or information concerning the existence and contents of reports of other regulatory auditors. No routine visits to subawardees were made to further evaluate the adequacy of the subawardee's grant financial management systems. We were informed that, while an on-site visit to a subawardee would be possible, no such visit has ever occurred for a potential subawardee other than 2 visits to Alabama A&M in 2003 when the award activities were initiated at that institution.

Prior to approval of an entity as a subawardee, TBU should perform a more in-depth review to determine if the subawardee's financial management, the accounting system, and internal controls are adequate to account for NSF program funds in accordance with federal requirements.

### TBU's Subawardee Monitoring Process

The University's procedures performed with respect to ongoing subawardee monitoring and risk assessment were also not sufficiently comprehensive. Interviews with the Research Accountants in the Post Award Financial Operations (PAFO) office and the Principal Investigator (PI) disclosed that the role of the Research Accountant is primarily to ensure subawardee invoices are in accordance with the subawardee budget and are properly coded, while the role of the PI is to ensure that progress is made on the funded research. Neither of these reviewers performs procedures sufficient to determine that subawardee costs are allowable and documented, and the subawardee's internal controls are adequate to account for program funds in accordance with federal requirements.

The most significant aspects of monitoring subawardees during the award period rest primarily with the PI, and include:

- Monitoring billings and evaluating subawardees' efforts toward meeting performance goals.
- Screening performance reports submitted by subawardees.
- Maintaining regular contact with subrecipients and inquiring about program activities and achievement of performance goals.

The PI for the Center does not visit subawardee sites.

Subawardee invoices are also reviewed by Research Accountants in PAFO. The objectives of this review are set forth in the Research Accounting E-Manual which states:

“The RA Admin will review the invoice for the following details:

- PI signature,
- To assure that it is within the effective period of the subcontract,
- To verify that the subcontract funding is available on both FS04 and PO02 and that the department has assigned the correct object code to the expense (0915 on the first \$25,000 and 0958 on amounts over the first \$25,000),
- To reconcile the total amount paid on PO02 to the new cumulative total on the invoice allowing for the current charges,
- To verify that the approval amount agrees with the amount requested for payment on the current invoice.”

This review does not address the reasonableness, allowability, allocability or consistency of the costs claimed in relation to the terms of the subaward agreement.

Further, TBU's guidance with respect to obtaining and reviewing A-133 Single Audit Report throughout the life of the award, indicates that the reports were not always reviewed for internal control weaknesses and instances of noncompliance. The University's Research Accounting E-Manual addresses the processing of A-133 Single Audit Reports and A-133 Certification Request Letters as follows:

“Recipients are given one month to respond to the A-133 Certification Request Letter. Responses are logged with the date they are received. If they do not respond by the deadline, send a second request, marked 2<sup>nd</sup> Request, giving the recipient one more month to respond. If they still do not respond check the Federal Audit Clearinghouse website <http://harvester.census.gov/sac/> to see if their audit has been filed. If so print off and update the log with the date in the Date fr FAC. If the FAC does not have the report all subsequent requests are to be made via phone followed up with a faxed copy of the letter.”

This guidance does not provide assurance that A-133 Single Audit Reports are actually received and reviewed for information relevant to the ongoing assessment of fiscal compliance with NSF award terms.

During our interviews the PIs stated that they monitor for performance and achievement of award objectives. The PI and PAFO personnel stated that most subawardees were either major universities or large commercial laboratories and thus were considered to be reputable. Also, they stated that many of their subawardees had Single Audits performed in accordance with OMB Circular A-133, and that TBU relied on the Single Audit of the subawardee to ensure that the costs claimed by its NSF subawardees were accurate, valid, allowable and adequately documented. Therefore, the TBU personnel indicated that they believed further investigation of the suitability of these institutions for a subaward was unnecessary, and that further fiscal monitoring with respect to controls and compliance was also not warranted.

We understand that federal awards determined to be of sufficiently high dollar or high risk are subject to individual testing under OMB A-133 provisions. However, in the event that NSF awards are not considered to be a major program, these awards may not be subject to review during an A-133 audit. Therefore, TBU’s reliance on the results of an A-133 Single Audit to fiscally monitor its NSF grant subawardees did not constitute adequate fiscal monitoring of its subawardees.

Throughout the period of the award, TBU should annually ensure that required A-133 audits have been conducted and:

- Obtain certification that the required A-133 audit has been completed,
- Obtain certification that audits by other regulatory agencies have or have not been conducted,
- Obtain and review all audit reports for pertinent findings and ascertain with subawardee that timely and appropriate correction action was taken if findings were indicated,
- If subawardee is required to but fails to have an A-133 audit performed or does not correct the findings, take appropriate sanction action, such as refusing to issue subsequent awards or implementing other mitigating controls,
- Evaluate impact of A-133 audit findings on TBU,
- Assess the effect of subawardee actions on the University’s ability to comply with federal laws and regulations, and
- Document the results of the assessment.

Similarly, the TBU did not have policies and procedures to adequately monitor cost sharing claimed by subawardees. Subawardees submit periodic invoices for claimed costs. These invoices include a section for the certification of cost shared for personnel, travel, participant support, other direct, indirect and equipment costs. These subawardee certifications are the only source documentation maintained by

TBU to support the subawardees' amounts claimed as cost sharing. No other detail listing or source documentation is submitted by the subawardees with their certifications to support the cost sharing claimed. In addition, TBU has no process in place to verify the accuracy and validity of the expenses claimed on the subawardee certifications. The University relies on the subawardees' certifications to ensure the cost sharing amounts are accurate and properly documented.

An effective subawardee evaluation and monitoring approach would require the evaluation of potential subawardees prior to award and ongoing monitoring of subawardees that receive federal flow through funding from Federal sources. The purpose of the plan is to establish a monitoring system that defines subawardee monitoring and the required core monitoring areas; ensure monitoring of all subawardees; and eliminate duplication of monitoring efforts.

Results of Auditor's Subawardee Site Visits - As a result of the subawardee monitoring internal control deficiencies, we performed on-site procedures at three of TBU's subawardees to satisfy ourselves that the subawardee costs charged by TBU to its NSF grants were reasonable, allowable and allocable. As a result of our additional on-site procedures, we questioned \$412,400 of costs claimed under NSF award number ATM-0120950 because such costs were unallowable, inadequately supported, or represented indirect costs improperly charged as direct costs. We also questioned \$174,397 of cost share claimed by 2 subawardees because the costs are not allowable under federal cost principles.

The following is a description of the exceptions we noted during our on-site visit at the University Corporation for Atmospheric Research (UCAR), University of Colorado at Boulder (CU-Boulder), and, Dartmouth University.

#### **University Corporation for Atmospheric Research (UCAR)**

The University Corporation for Atmospheric Research (UCAR) charged, as depreciation, bond principal payments of \$60,000 which represented 50% of the cost of a multi-processor computer, as well as interest and bond issuance costs on the bonds of \$4,645. The computer was purchased prior to the award, and was used for activities unrelated to the award. The PI at UCAR stated that the computer was used extensively on award-related activities, however, there was no formal or documented basis to support the allocation of 50% of the costs associated with the computer to the CISM award. The NSF Program Officer, upon learning of this finding, stated that he acknowledged that the computer was largely used for CISM computing but that does not relieve UCAR from having adequate processes for quantifying the usage, nor TBU from its subaward oversight responsibilities. In addition, OMB Circular A-122, Cost Principles for Non-Profit Organizations<sup>1</sup>, states that a cost is allocable to a Federal award if it "benefits both the award and other work and can be distributed in reasonable proportion to the benefits received." Because there is no documented basis for the allocation of costs to the award, we were unable to determine whether the costs of \$64,645 were allocable to the award.

Further, as discussed in OMB Circular A-122, depreciation of equipment and interest on debt associated with equipment are typically classified as indirect costs. Section D.3.C(1)(b) states that "Depreciation or use allowances on buildings used for more than one function, and on capital improvements and equipment used in such buildings, shall be allocated to the individual functions performed in each building on the basis of usable square feet of space, excluding common areas, such as hallways, stairwells, and restrooms." UCAR did not have a basis for allocating the costs of the computer to the award.

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<sup>1</sup> UCAR is a non-profit organization and is therefore subject to OMB Circular A-122, Cost Principles for Non-Profit Organizations.

The UCAR also charged indirect costs such as telephone, postage and shipping charges, amounting to \$11,603, as direct costs, even though such costs are typically charged as indirect costs and may be included in the indirect cost rate. UCAR personnel stated that the development of their indirect cost rate is based on total division costs and thus they did not consider whether administrative costs such as postage and telephone were recovered through the indirect cost rate.

Additionally, costs not required to accomplish award objectives were charged to the award, such as conference give-aways in the form of 700 calculators, 1,000 mouse pads and 300 tote bags emblazoned with the CISM logo, (\$3,491), translation of UCAR's Windows to the Universe web site to Spanish (\$4,556), and a Visa application fee for entry into the United States (\$500). With respect to the latter two charges, their focus on international participation, while perhaps a worthy objective, is not consistent with the objectives of the award, which include<sup>2</sup>:

- c. Increase participation of United States citizens, nationals, or lawfully admitted permanent resident aliens of the United States, especially women and members of underrepresented groups, in the activities of the Center..." and
- d. Provide educational and research opportunities at the Center and its subawardees for United States citizens, nationals, or lawfully admitted permanent resident aliens of the United States....."

The above costs are also unallowable under OMB Circular A-122 which states that, in order for a cost to be an allowable charge to a federal award, it must be "ordinary and necessary for the operation of the organization or the performance of the award."<sup>3</sup>

A UCAR management fee of \$143,165, representing █████ of award expenditures, was charged to the award. Documents describing the UCAR management fee state that "the purpose of the management fee is to enable the organization to accumulate a reserve to provide organizational stability as well as to pay prudent business expenses not otherwise reimbursable." The fee is to be charged on all governmental and commercial awards, at a rate of █████ and █████ respectively, with the exception of direct funding from NSF. With respect to the CISM award, UCAR is a participant in a consortium and receives NSF funding passed through TBU. However, the NSF's Grants Policy Manual, Section 640, states that the "payment of fees is allowable only if specifically permitted by a program solicitation and only to the extent that it does not exceed the amount negotiated by the Grants Officer and specified in the award letter." The fee was not identified in the grant letter authorizing the award or in the accompanying award budget, and it was not addressed in the subaward agreement, and thus does not meet the criteria of an allowable cost.

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<sup>2</sup>Grant Letter for Award-0120950, B. *Statement of Work & Awardee Responsibilities*, 2.c and 2.d, documents the component of the CISM award focusing on education and knowledge transfer.

<sup>3</sup> OMB Circular A-122, Attachment A, *General Principles*, A.2.a. states that, "In determining the reasonableness of a given cost, consideration shall be given to: a. Whether the cost is of a type generally recognized as ordinary and necessary for the operation of the organization or the performance of the award."

Foreign travel of \$28,698 was charged to the award even though such costs were not approved in advance or included in the NSF-approved budget, as required. The line item for foreign travel in the annual budgets for UCAR was left blank each year of the award. OMB Circular A-122, Attachment B, *Selected Items of Cost*, Paragraph 51.e, Foreign Travel, states that “Direct charges for foreign travel costs are allowable only when the travel has received prior approval of the awarding agency. Each separate foreign trip must receive such approval.”

UCAR claimed as cost share a percent of the vendor discounts offered to conference participants, primarily school district personnel, for books, software and software licenses. The vendors were afforded an opportunity to present and sell their software to audiences of K-12 educators attending summer workshops partially supported by the CISM. The vendors offered discounts of approximately 40% to 50%; discounts, if any, on future year upgrades and support were not addressed. The cost share included a value assigned to time spent by employees of the software company attending and instructing conference participants in the use of the company’s software. The discounts and time were valued by the vendors at \$617,050, and the portion claimed as cost share on the CISM award was \$157,226.

There were 2 software packages available for purchase by the school districts; [REDACTED] which is a type of geographic information system (GIS) software, and [REDACTED] which is used to create numerical models. These costs represent customary business practices of a commercial nature and should be considered promotional activities of the company. These competitive open-market discounts should not be funded, in any form, by NSF. 2 CFR 220 (OMB Circular A-21.J.1.f) states that unallowable advertising and public relations costs include “All advertising and public relations costs other than as specified in subsections 1.c, 1.d and 1.e”, and “Salaries and wages of employees engaged in setting up and displaying exhibits, making demonstrations, and providing briefings”. Further, 2 CFR 215 (OMB Circular A-110), Uniform Administrative Requirements For Grants And Agreements With Institutions Of Higher Education, Hospitals, And Other Non-Profit Organizations, § 215.23 Cost sharing or matching, states that contributions, including third party in-kind, may be accepted as cost sharing when such contributions “are necessary and reasonable for proper and efficient accomplishment of project or program objectives.” The sale of software and software licenses and books concerning its use, while perhaps beneficial to the school district customers, has not been demonstrated to be necessary for achieving the award’s mission, which is “to develop advanced computer models to specify and predict space weather from the surface of the sun to the surface of Earth.” Accordingly, we questioned the \$157,226 of cost share claimed by UCAR because the costs are not allowable under federal cost principles.

In total, we questioned \$256,658 in claimed costs and \$157,226 in claimed cost share on TBU’s subaward with UCAR.

### **University of Colorado at Boulder (CU-Boulder)**

The University of Colorado at Boulder (CU-Boulder), charged foreign travel to the CISM award in the amount of \$125,963. A total of \$54,176 was included in the budgets submitted to TBU and NSF for CU-Boulder. The balance of \$71,787 was not identified in award budgets and we were unable to obtain evidence of advance approval by NSF. Further, our audit tests revealed that individual travel is not reviewed adequately to ensure compliance with OMB allowable cost principles. Specifically, one trip to Perugia, Italy resulted in charges to the CISM award of \$8,495. This trip involved 3 nights of duplicate hotel bills, with each night charged to one hotel and also to another hotel. Explanations for the duplicate charges were not reasonable. The travel also included apparent side trips to resort areas for which hotel, rental car and per diem charges were incurred. Included in the \$8,495 were costs

associated with visits to Munich, Germany both prior to and after the conference held in Italy. Although documentation of the need for these visits was requested by the auditors, none was provided. Because CU-Boulder could not provide support for the portion of the trip that would be allowable, the entire cost of this trip is questioned.

The CU-Boulder also charged unallowable costs in the form of relocation moving expenses for a new employee. The NSF's Grants Policy Manual, Section 624.a.1, states that moving expenses are allowable if "a proposal for NSF support specifically indicates that the grantee intends to hire a named individual for full-time work on the project". This condition was not met and the \$6,000 of moving expenses charged to the CISM award are therefore not allowable.

The CU-Boulder charged consultant costs at rates exceeding the allowable amount. The NSF Grants Policy Manual, paragraph 616.1.c. states that "payment for a consultant's services may not exceed the daily equivalent of the then current maximum rate paid to an Executive Schedule Level IV Federal employee (exclusive of indirect cost, travel, per diem, clerical services, fringe benefits and supplies)." The consultant whose fees and expenses were charged to the CISM award was paid in excess of this rate and also did not provide documentation to support his expenses. Therefore, excess and undocumented consultant costs amounting to \$42,795 are considered unallowable. These consultant costs charged were charged as both direct costs (\$25,624) and as cost share (\$17,171). An additional charge to the award was made in March of 2010 in the amount of \$18,969. This charge has not been audited and no amounts associated with it are included in the questioned costs identified for the award period ending December 31, 2009.

The CU-Boulder charged payroll and fringe benefits at a rate exceeding the institution's base rate of pay, resulting in excess charges of \$4,172. An effort report could not be located to support personnel costs for one individual charged to the CISM award amounting to \$39,990, consisting of \$20,996 of salary, \$5,879 of fringe benefits and indirect costs of \$13,115. However, the effort report was located in March 2011, and these costs are no longer questioned. Another individual certified an effort report that did not reflect \$13,333 of personnel costs (salary of \$7,000, fringe benefits of \$1,960 and indirect costs of \$4,372) which were later transferred to the award. Therefore, these costs are not supported by a certified effort report.

Indirect costs such as telephone, postage and shipping charges, amounting to \$673, were charged as direct costs, even though such costs are typically charged as indirect costs and may be included in the indirect cost rate.

In total, we questioned \$138,790 in claimed costs on TBU's subaward with CU-Boulder.

### **Dartmouth University**

A third subawardee, Dartmouth University, demonstrated appropriate internal controls over most aspects of award fiscal administration. The only discrepancy identified at this institution was the absence of a certified effort report for one effort reporting period. While the effort report was generated and signed, the certifier specifically noted on the effort report that he was unable to attest to the accuracy of the effort allocations reported. Therefore, as the effort charged to the CISM award is not supported by validation from the individual whose effort was charged, the personnel costs of this payroll period for this individual are questioned in the amount of \$34,153, representing \$17,434 in salary, \$6,276 in fringe benefits and \$10,443 in indirect costs.

In total, we questioned \$34,153 in claimed costs on TBU's subaward with Dartmouth.

These instances of noncompliance and the associated questioned costs, and, the internal control weaknesses at the selected subawardee institutions were not detected by the TBU through its subawardee monitoring process because these processes are inadequate to effectively monitor subawardees. The lack of an effective risk assessment process and follow-up on other auditor's findings is caused primarily by the OSPs perception that the existence of an A-133 audit supplemented with PI programmatic monitoring and review of subawardee invoices constitutes sufficient subawardee management. Although the University recognizes that subawardees are required to comply with the provisions of OMB Circular A-133 and the terms of the federal award, its procedures are not sufficient to ensure that potential subawardees have systems in place to promote such compliance and that existing subawardees maintain such systems throughout the award period. Considering the significance of subawardee costs to the award under audit, subaward expenditures must be effectively monitored to avoid noncompliance potentially resulting in ineffective research, disallowed costs and a directive to return grant funds to NSF or other sponsoring agency.

The TBU could improve their subaward monitoring process by including a risk based process to assess the risk of their subawards to determine the level of subawardee oversight necessary. They could also perform site visits or conduct other programmatic reviews to oversee the progress of ongoing work and review completed tasks; and, obtain and review all subawardee A-133 audit reports, internal inspection programs, quality control reviews, and other types of compliance requirements of the subawardees. A formal subaward monitoring plan and routine subaward monitoring could prevent or identify unallowable subaward costs claimed for NSF awards.

### **Recommendation No. 1**

We recommend that NSF's Director of the Division of Institution and Award Support address and resolve the following recommendation made to TBU. We also recommend that NSF require TBU to submit documentation in sufficient detail to demonstrate that corrective action taken or proposed is sufficient to resolve the control deficiencies noted.

- a. Develop formal and comprehensive risk-based subawardee fiscal monitoring procedures to ensure that subaward costs are reasonable, allowable, and allocable to the NSF award. These procedures should require that TBU:
  - Obtain certification that the required A-133 audit has been completed,
  - Obtain certification that audits by other regulatory agencies have or have not been conducted,
  - Obtain and review all audit reports for pertinent findings and ascertain with subawardee that timely and appropriate correction action was taken if findings were indicated,
  - If subawardee is required to but fails to have an A-133 audit performed or does not correct the findings, take appropriate sanction action, such as refusing to issue subsequent awards or implementing other mitigating controls,
  - Evaluate impact of A-133 audit findings on TBU,
  - Assess the effect of subawardee actions on the University's ability to comply with federal laws and regulations, and
  - Document the results of the assessment.

- b. Ensure that the procedures include clearly defined monitoring responsibilities from pre-award through the award completion stages. The monitoring procedures should include desk reviews, site visits, and other monitoring steps, as necessary.
- c. Identify all management fees that have been erroneously claimed on the NSF award since its inception and adjust the claims accordingly.

### **Awardee's Comments**

The issues described in this finding have been addressed with development and implementation of appropriate policies and procedures. Upon notification of these deficiencies in April 2010, Boston University immediately began developing and implementing policies and procedures including, but not limited to: a Subrecipient Manual, Annual Subrecipient Certification, Prequalifying Questionnaire, Risk Analysis tools, and Subrecipient Invoice Review Guidelines which were fully implemented in November 2010 that fully address the recommendations noted above.

Additionally, ongoing training is provided to Post Award Financial Operations' and Office of Sponsored Programs' staff to ensure consistency, completeness, and appropriate escalation steps are taken when circumstances arise that may warrant adding additional language to subaward agreements, desk audits, and other appropriate reviews as necessary.

We strongly disagree with disallowing \$189,702 of the \$468,976 questioned costs. Specifically:

- \$102,226 of foreign travel is allowable. The terms and conditions of the award refer to the NSF Grant General Conditions (GC-1) which state "the requirements for prior approval detailed in the governing costs principles are waived." Additionally, per clarification of clause H.5.a in NSF's Science and Technology Center Cooperative Agreement provided by NSF's Grants and Agreements Office to NSF's Program Officer "the clause does not require NSF approval for individual U.S. or foreign students or researchers to participate in Center supported projects and activities onsite or abroad. Rather, the clause covers collaborative arrangements between the Center and foreign governments or foreign institutions, such as written agreements, memoranda, or subawards, or other institution to institution arrangements, such as a university exchange program."
- \$87,476 payroll costs charged without certified effort reports should not be disallowed.
  - The Dartmouth effort report supporting \$34,153 of the questioned costs was certified. The fact that the certifier was unable to attest to the penny the dollar amount paid in salary does not negate the certification.
  - In regards to CU-Boulder, we have an effort report supporting the \$13,332 finding. Additionally, \$39,990 represents a PAR that was certified but unable to be located. To correct this issue, the subawardee would need to ensure that the PAR is appropriately certified and on file.

In order to fully respond to the circumstances regarding the remaining \$279,274 questioned costs and \$157,266 in questioned cost share described in this finding, our prior request for further cost detail will need to be fulfilled in order for examination and determination of the validity of the proposed disallowances. TBU was provided with some limited documentation by the auditors on March 21<sup>st</sup> and March 23<sup>rd</sup>; however, the information was not in an adequate format nor in a timely manner to include substantive management responses for the March 23<sup>rd</sup> deadline.

Additionally, as part of the review of all questioned costs identified during this audit, we will review the appropriateness of any management fees erroneously claimed on the NSF award since its inception.

### **Auditors' Response**

The Awardee's comments are partially responsive to the recommendation. The University's statements that it has revised its policies and procedures address the recommendation pertaining to subawardee management. NSF will consider these revised policies and procedures to determine their adequacy and implementation during audit resolution.

With respect to the awardee's response concerning NSF approval of foreign travel, the Award's Financial and Administrative Terms and Conditions require the awardee to "obtain prior written approval from the NSF Grants and Agreements Officer whenever there are significant changes in the project or its direction" and the award letter specifically states that "The lead institution, Boston University, is responsible for planning, operating, and managing the Science and Technology Center.....in accordance with proposal ATM-0120950, as modified by the revisions dated November 7, 2001, and *revised budget* dated July 26, 2002". The budget provided for no foreign travel at many subawardees, and minimal foreign travel at the remainder. The award documents contain no discussions of plans or a need for foreign travel. Subawardee CU-Boulder, however, charged the CISM award for travel to Finland, Brazil, Banff Canada, Italy, Poland, Bulgaria, Greece, Japan, France, Germany, Belgium, Chile, Mexico, Hungary, Singapore, Montreal Canada and Alberta Canada. Subawardee UCAR, with no budgeted foreign travel, charged foreign travel in 2003, 2004, 2005 and, in 2008. Such extensive foreign travel is not consistent with the stated objectives of the award or the means by which they were set forth to be accomplished. NSF can consider whether the travel was within the scope of the program during the audit resolution process.

With respect to the awardee's response concerning effort reporting deficiencies, missing effort reports or effort reports on which the signer notes that he "cannot validate the figures detailed on the attached sheet" constitute inadequate support for labor charges and the related benefits and indirect costs. The effort report referenced as supporting \$13,333 in costs actually certifies 100% of effort as expended on another project or cost center. We have, however, recently learned from CU-Boulder that a missing effort report has been located to support the charges of \$39,990 (salary of \$20,996, fringe benefits of \$5,879 and indirect costs of \$13,115) and we are reinstating those costs which are therefore not reflected as questioned costs on Schedule A.

With respect to the remaining questioned costs, we note that all requests for cost detail have been responded to and were addressed within 1 business day of the original inquiry.

This finding should not be closed until NSF determines that the recommendation has been adequately addressed and the proposed corrective actions have been satisfactorily implemented.

## **Finding No. 2: Cost Share Commitments Are Not Adequately Monitored, Accounted For or Reported**

The University does not have adequate internal controls to ensure that cost share is properly identified, recorded, reported, and monitored. Deficiencies were identified in the procedures for identifying and recording cost share in the University's accounting system; monitoring and reporting subawardee cost share; and reporting accurate cost share amounts to the NSF. We determined that cost share expenses are not recorded in separate specifically identifiable accounts in the accounting system, cost share as certified by TBU for the subawardees was not in agreement with cost share reported on the cost share reports from the subawardees, and costs reported as cost share items included unallowable costs for \$157,226 from one subawardee and \$17,171 from another subawardee. This condition occurred because policies and procedures regarding cost share were minimal and were not effective to ensure these costs were properly accounted for, recorded, and reported. As a result, the University's internal control over cost sharing does not provide assurance that the cost sharing expenditures reported and claimed by TBU or its subawardees are accurate, allowable, allocable, and reasonable or that TBU's program objectives are being met as intended.

NSF's Grant Policy Manual (GPM), Section 333.6, *Cost Sharing Records and Reports*, and OMB Circular A-110, Section 23, require grantees to maintain records of all costs claimed as cost sharing, and states that those records are subject to audit. These regulations also state that cost-sharing expenses must be verifiable from the recipient's records, not be included as contributions to any other federal award, or funded by any other federal award. OMB Circular A-110, Section 23, also states that, to be accepted as part of the recipient's cost sharing, expenditures must be necessary and reasonable for proper and efficient accomplishment of project or program objectives and allowable under applicable cost principles.

2 CFR Part 215 (formerly Office of Management and Budget (OMB) Circular A-110), *Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-profit Organizations*, paragraph C.21.(b), requires that recipients of federal funding have financial management systems that provide "accurate, current and complete disclosure of the financial results of each federally-sponsored project..." and "effective control over and accountability for all funds..." With regard to cost sharing specifically, the circular requires that cost-sharing amounts must be "verifiable from the recipient's records" and "allowable under the applicable cost principles."

2 CFR 220 (formerly Office of Management and Budget (OMB) Circular A-21), *Cost Principles for Educational Institutions*, provides criteria for determining allowable compensation for personal services. The circular states that the payroll system will "be incorporated into the official records of the institution," and that the payroll system method "must recognize the principle of after-the-fact confirmation or determination so that costs distributed represent actual costs," and must allow "confirmation of activity allocable to each sponsored agreement..."

TBU's written policies and procedures regarding cost share are minimal, consisting of a summary provided in its 1998 Disclosure Statement and the instructions for completing the Cost Share Documentation Form.

## **Identifying and Recording Cost Share in the Accounting System**

The University's accounting system does not provide for separate accounting for cost share, rather such costs are recorded in a variety of unrestricted accounts. As described in the University's Disclosure Statement, when committed cost share is a component of an award the PI, Grant Administrator (now the Research Assistant) and Cost Analysis Group are advised. Separate logs are maintained of costs accumulated that will constitute cost share as these costs are "originally charged to other cost objectives," and then "reclassified for cost analysis purposes through identification in the Effort Reporting System and cost share documentation form". Because costs are not identified as such in separate cost share accounts, cost share records and reports are not integrated into the accounting system and must be manually generated. These procedures for the review of manually created cost share records are not adequate to ensure that claimed costs are relevant to and allowable under the terms of the award. Also, this process may allow for cost share items to be claimed as both direct costs and as cost share. A better process or system to account for cost share, whether manually or within the accounting system, is needed to ensure that the amount of cost share contributed is accurately recorded.

## **Monitoring and Reporting Subawardee Cost Share**

We also determined that subawardee cost share is not adequately monitored by University personnel, although more than 62 percent (\$5.4 million) of CISM claimed cost share was provided by subawardees. 2 CFR Part 215 (formerly OMB Circular A-110), which requires that cost-sharing amounts be "verifiable from the recipient's records" and "allowable under the applicable cost principles."

The detail of certified cost share from subawardees is maintained at the PI's location which, for award ATM-0120950, is the CISM. The practice of the PI reviewing and maintaining cost share records reflects the University's philosophy of decentralizing authority for award administration. To provide adequate internal controls over decentralized functions, decentralization of authority requires thorough and effective training, systems and written procedures at the decentralized (departmental) level.

Subawardees reporting cost share did not always provide sufficient detail to allow the TBU PI or his designee to evaluate the reliability of the cost share amount reported. Although TBU's reporting form requests detail to support captions such as "salaries," this detail is sometimes omitted by the subawardee with no apparent consequence.

The lack of support for subawardee cost share is in stark contrast to the more comprehensive requirements TBU recently imposed on its own research personnel. The Cost Sharing Documentation form for use at TBU was created in May of 2009, and thus was not in use during most of the award period beginning in July 2002. The form requires the following attachments:

- Personnel Action Reports that support the cost share
- For student tuition, a list to include the name, University ID Number, Year/Semester and dollar amount
- For student stipend payments, a copy of the Budget Status Report which supports the expense with the cost sharing item identified.
- A copy of the Budget Status Report which supports this expense with the cost sharing item(s) identified.
- For in-kind contributions, the PI is to maintain departmental records supporting the value of each in-kind item and provide copies of this documentation to Research Accounting.

While the attached information provides a fairly thorough and auditable record of TBU cost share, no such information is requested or required for cost share provided by subawardees. Therefore, the cost share claimed by subawardees was not always supported with sufficient documentation to allow TBU, as the primary awardee, responsible for monitoring the activities of the subawardees, to thoroughly review the claimed cost share for accuracy and reasonableness.

We determined that one subawardee included as cost share the discounts on books, software and site licenses offered by two vendors at a summer session involving CISM research and attended primarily by school district representatives. This transaction was purported to represent \$617,050 of value, of which a percentage representing \$157,226 was claimed as cost share on the CISM award. However, the offering of discounts by a vendor represents a marketing strategy for product promotion and sales to third party school districts and does not involve the sharing of project costs by the subawardees. It is thus is not allowable as a component of cost share. See the discussion on unallowable cost share claimed by UCAR in finding 1 for more details.

Another subawardee charged consultant costs of \$42,795 at rates exceeding the allowable amount governed by the maximum rate paid to an Executive Schedule Level IV Federal employee (exclusive of indirect cost, travel, per diem, clerical services, fringe benefits and supplies), and without documentation to support the consultant's expenses. Total consultant costs charged (\$42,795) were questioned; \$25,624 was questioned as a direct charge to the award and \$17,171 was questioned as cost share. This item is discussed further in Finding 1.

Representatives of the University's central OSP or the PI could visit subawardee sites and obtain further evidence of support for cost share claimed. However, the PI advised us that there had been no visits to subawardee sites after the initial start up of the award in 2003 at which time two visits were made to Alabama A&M. No other sites have been visited by either the PI or OSP.

### **Cost Share Certification and Reporting to NSF**

We determined that the University does not maintain adequate cost sharing records to support cost share certifications provided to NSF. The cost share records maintained at the departments do not agree with the amounts recorded in the general ledger and neither of these amounts agrees with the cost share amounts certified in the annual certifications to NSF. Further, TBU does not require that cost share reports from subawardees contain sufficient information for a meaningful evaluation of the reasonableness of cost share reported. Therefore, it is not possible to determine whether subawardee cost share records are adequate to support cost share certified. Also, cost share as reported in the University's accounting system is not routinely reconciled to the individual TBU and subawardee cost share reports or to the annual cost share certifications submitted to NSF.

Specifically, the cost share certified to NSF, which includes cost share provided by subawardees, was not in agreement with all respective subawardee cost share certifications. The terms of Award ATM-0120950 regarding cost share included the following clause:

“As a condition of this award, the grantee agrees to share in the costs of the project in the amount of 30% of the total award amount..... The amount of cost sharing must be documented on an annual and final basis...”

During our audit we noted that stated cost share amounts were inconsistent for the CISM award in that cost share required in the NSF amended budgets through year 6 (2008) was \$7,108,000, while cost share

per subawardee cost share reports and TBU accounting records totaled \$7,473,542, but certified cost share reported through NSF's FastLane System was \$7,640,989. In response to the audit, TBU ultimately resolved the differences and made corrections as necessary to the cost share records, however, considerable time and effort was required before complete and accurate cost share records were available. As another consequence, the inability to separately record and identify cost share items through the accounting system complicates efforts to ensure that such costs and the related indirect costs are not also charged to another NSF or Federal award.

TBU's written policies and procedures regarding cost share are minimal, consisting of the summary provided in the 1998 Disclosure Statement and the instructions for completing the Cost Share Documentation form. We were unable to locate written policies or procedures for maintaining cost share summary records, compiling cost share certification information or analyzing subawardee cost share. We also noted that various records and reports purporting to present amounts reported as cost share were inconsistent.

As a result of the differences noted, we expanded our audit procedures to review the detail of all cost share submissions for reasonableness in relation to the award objectives and the responsibilities assigned to each award participant. We noted that the majority of award participants provide cost share primarily or solely in the form of PI, graduate or post graduate researcher salaries and the related fringe benefits and indirect costs.

The failure to properly identify and record cost share in the University's accounting system or some other reliable method, the inconsistency between the various cost share records, and, the lack of thorough monitoring of subawardee cost sharing increases the risk that TBU may not be adequately accounting for and monitoring cost sharing promised on this award. Accordingly, the University's internal control over cost sharing does not provide assurance that the cost sharing expenditures reported and claimed by TBU or its subawardees are accurate, allowable, allocable and reasonable or that TBU's program objectives are being met as intended.

## **Recommendation No. 2**

We recommend that NSF's Director of the Division of Institution and Award Support address and resolve the following recommendations made to TBU:

- a. Ensure the University OSP and PIs review cost share reports for sufficient detail to allow a meaningful evaluation of the reasonableness of reported amounts.
- b. Establish, communicate and document procedures requiring the University OSP to reconcile cost share recorded in the general ledger (or other established manual process) to cost share reported by TBU and the subawardees, and to cost share certifications to NSF.
- c. Direct the University to prepare written policies and procedures for managing cost share and provide training to PIs and the RAs regarding the correct process for properly evaluating, recording, and reporting all committed cost share associated with sponsored awards, including that submitted by subawardees.

## **Awardee's Comments**

The University disagrees with the finding stating costs reported as cost share items included significant unallowable costs for \$157,226 from one subawardee. More documentation is required to fully respond to the finding.

The University is implementing a new financial accounting system on July 1, 2011. The accounting system will include companion accounts designated to record the University's cost share activity per project. This will provide more transparency improving the management of cost share.

Additionally, the University will develop and implement written policies and procedures for managing cost share and provide training to assist in ensuring that cost share is allowable, allocable, and accurately recorded and reported. The University will develop and implement adequate reconciliation procedures between our financial system, cost sharing reports, subaward documentation, and cost share certifications to NSF.

### **Auditors' Response**

The actions that BU states have been taken to strengthen policies and procedures for the managing, recording and reporting of cost share are responsive to the finding and recommendation. Documentation to support the finding has been provided to Boston University. This finding should not be closed until NSF determines that the recommendation has been adequately addressed and the proposed corrective actions have been satisfactorily implemented.

### **Finding No. 3: Monitoring of Employee Terminations and Accrued Sick Leave is Inadequate**

The University's system of internal controls over the personnel/payroll function is not adequate to prevent the continuation of payroll checks or deposits after an employee has terminated their employment with the University. Also, internal controls at CISM are not adequate to ensure that sick leave is accurately recorded and reported for CISM employees.

Specifically, there is no process or requirement in place requiring that someone independent of the payroll initiation and distribution functions notify a party outside of the department where they work, such as the University's Office of Human Resources, when a non-student employee is terminated. Further, with respect to monitoring and accounting for sick leave, while the University's personnel leave policy requires all departments to maintain records of employees' accumulated sick leave balances, such records are not maintained for CISM employees. These conditions occurred because of a lack of emphasis on the importance of internal controls over unauthorized compensation for terminated personnel, and, improper sick leave practices and reporting for CISM employees. The lack of effective internal controls over the payroll/personnel functions and employee leave practices place NSF funds at risk and may result in costs claimed that are not reasonable, allowable, and necessary for the NSF award.

2 CFR 220 (Office of Management and Budget Circular A-21), *Cost Principles for Educational Institutions*, requires that institutions have adequate internal controls in place, including segregation of duties. The circular states that, "the institutions financial management system shall ensure that no one person has complete control over all aspects of a financial transaction."

2 CFR 220 (OMB Circular A-21) also provides criteria for determining allowable compensation for personal services. The circular states that the payroll system will "be incorporated into the official records of the institution."

The University's Employee Handbook, 302.9 Other Provisions, states the following:

“Supervisors are responsible for maintaining complete and accurate records of the Sick Leave accruals and usage for each employee under his or her supervision. Supervisors are also responsible for accurately reporting Sick Leave usage on all documents submitted to the Payroll Office.”

The University does not have adequate internal controls over the termination of employees, and, the reporting of sick leave. These controls do not ensure that personnel and payroll records are adjusted on a timely basis to reflect employee terminations nor do they ensure that sick leave is accurately recorded and reported in accordance with University requirements.

We noted during our audit that, with respect to employee terminations, internal controls are not in place to ensure that a *non-student* employee's pay check ceases to be generated when they are terminated or no longer employed by the University, and thus cannot be improperly accessed by someone other than the designated employee. There are no policies or procedures in place that requires the Office of Human Resources to be notified of the termination of non-student employees. We were informed by CISM administrative personnel that, when a non-student employee is terminated, only the PI is required to be notified. There is no control in place to ensure that a third party such as HR is notified of the employee's termination and that the employee should no longer receive paychecks or payments by direct deposit.

The University's Employee Handbook, 204.4 Related Consideration, addresses terminating employees but does not provide for notification to HR of the termination. The Handbook states the following:

“Terminating employees are required to make arrangements to settle all outstanding University accounts prior to their last day of work. In addition, all terminating employees are required to return to the University all University property in their possession, including but not limited to their University identification card, University parking sticker, and all other University property (keys, books, tools, computers, computer software, etc.).”

This condition is contrary to the process for student employees, where the University's policies and procedures require that someone independent of the payroll distribution function is notified of the termination. When a student employee is leaving the University's employment, the student is to notify the PI and his or her departmental advisor of the pending termination. The advisor then notifies the University's Office of Human Resources that the student has terminated employment with the University.

During our tests of payroll expense transfers, we noted that one individual received a payroll check for the month following his termination date. The University's internal controls did not detect this error; rather the former employee notified the University and requested that the checks cease. The employee appropriately refunded the amount erroneously paid to the University. This situation illustrates the potential for improper payments to occur and the resulting complications should the former employee not report the problem and return funds erroneously paid by the University.

Effective internal controls over the payroll/personnel functions would provide assurance that non-student employee payroll checks or deposits would cease for employees that are no longer employed by the University. These controls would allow for personnel and payroll records to be properly adjusted on a timely basis to reflect employee terminations.

We also noted during our audit that internal controls are not in place to ensure that sick leave is accurately recorded and reported for CISM employees. With respect to leave records, the CISM administrator explained that each employee in the department keeps his or her own sick and vacation leave records. TBU's Office of Human Resources publishes a Manager's Toolkit, which describes a supervisor's responsibility for tracking sick leave. The Toolkit, which is available online, states the following:

“As a manager, you are responsible for maintaining the accuracy of accrued sick and vacation leave records for your non-exempt and exempt staff.”

However, TBU's practice at CISM is that employees notify the PI if they require time off. The PI does not keep a cumulative record of the employee's sick leave accrued or taken. The department is required to submit vacation leave balances to the University Comptroller once a year; however, there is no such requirement for sick leave.

The absence of verifiable records of employees' cumulative sick leave in the accounting system prevents the confirmation that University policies regarding the amount of sick leave accrued each month and the maximum amount of leave allowed are being followed. Further, a policy that allows self-policing of sick leave provides no assurance that amounts reported at year-end are accurate. As a result, there is no auditable record of its employees' accumulated sick leave balances.

Effective internal controls over the accountability and reporting of sick leave for CISM employees would provide assurance that the correct leave balances are accumulated and reported in accordance with University requirements. These controls would allow for personnel and payroll records to accurately reflect employee sick leave balances.

These conditions occurred because of a lack of emphasis on the importance of internal controls over unauthorized compensation for terminated personnel, and, improper sick leave accounting practices and reporting for CISM employees. Personnel at CISM explained that they have not considered implementing additional controls over employee terminations because employees are primarily paid by direct deposit, and therefore the risk of improper access to paychecks is considered acceptable. The University also believes that PIs will advise their departmental administrator of terminations, and that appropriate procedures will be employed, even without notification to the Office of Human Resources. Also, records of accumulated sick leave are not maintained because CISM personnel are unaware of such a requirement, and do not believe such record-keeping would be beneficial given the small size of their staff, which average to fewer than 10 staff.

The lack of effective written policies and procedures relating to terminating employees and the lack of compliance with existing University requirements for accurately recording and reporting sick leave place NSF funds at risk and may result in costs incurred that are not reasonable, allowable, and necessary for the NSF award. NSF funds may not be properly accounted for and reported, and also may be subject to mismanagement. A lack of segregation of duties with respect to payroll check distribution and reporting of terminations allows for the possibility that an employee within the department charged with handling and distributing payroll checks or with knowledge of the departing employees personal information could continue receiving payments intended for the terminated employee. The potential lack of notification to the Office of Human Resources could also allow for continued direct deposits to terminated employees' bank accounts, as was detected during the audit.

### **Recommendation No. 3**

We recommend that NSF's Director of the Division of Institution and Award Support address and resolve the following recommendations made to BU:

- a. develop written policies and procedures to address accounting for employee terminations and employee sick leave, and implement methods to ensure adherence to the approved policies and procedures.
- b. provide an appropriate segregation of duties by requiring an employee's supervisor or another designated official independent of the payroll processing function to notify the Office of Human Resources when employment is being terminated. This will prevent the possibility that another employee in the department could continue receiving payments intended for the terminated employee, or that payments continue subsequent to termination.
- c. Require that supervisors ensure that cumulative records of sick leave are maintained which will provide an auditable record within the accounting system to demonstrate compliance with University leave policies.

### **Awardee's Comments**

The University disagrees with the assertion that existing policies and procedures for employee termination and employee sick leave are inadequate.

Departmental personnel administrators are responsible for communicating personnel actions such as terminations and leaves of absence to the Office of Human Resources and Payroll through the University's electronic "turnaround" form, a part of the H/R Payroll system. CISM's turnarounds are updated by the College of Arts and Sciences' (CAS) Business Office.

The Office of Human Resources provides training to these administrators in the use of the turnaround system and communicates with them regularly. The importance of timely notification of any change in status is strongly emphasized during training; and personnel administrators are aware of the financial and compliance consequences to the University, the department and to sponsors when notification of a change in status is not made timely.

Additionally, it must be noted that CISM has adequate controls for monitoring grant activity that allowed them to also identify the overpayment made to the terminated Senior Research Associate on June 30, 2008. Specifically, on a monthly basis the Assistant Director prepares, reviews, and provides the Principal Investigator with an analysis of expenses charged to his awards, including faculty and staff effort. Preparation of this analysis includes a review of CISM's encumbrance system that CISM uses to assist in ensuring that employees are accurately paid.

Timing was a factor that led to the terminated employee's self discovery of the overpayment. Specifically, the Senior Research Associate ended his employment with the University on June 10, 2008. On July 2nd, two days after the payroll was deposited in the terminated employee's account, he informed CISM's Assistant Director of his overpayment.

The Assistant Director of CISM provided a copy of the employee's termination letter to College of Arts and Sciences) Business Office to inform them of the termination in June to ensure that the turnaround was appropriately updated. Unfortunately, the turnaround was not updated to reflect the employee's termination resulting in him being paid for the entire month of June. The Assistant Director contacted the CAS Business Office who stated that they were unaware of the termination and that the Senior Research Associate would need to reimburse the University which he promptly did in August.

As previously stated in this audit report, the University policy does require that supervisors maintain complete and accurate records of sick leave accruals and usage for each employee under his or her supervision. This is referenced not only in the Boston University Handbook, but also Human Resources online Manager's Toolkit. Unfortunately, this practice was not followed at CISM. Representatives from Human Resources will work with CISM to provide additional guidance on this matter to assist with compliance.

The University is implementing a new HR/Payroll system in July 2011 and January 2012 for nonexempt and exempt employees, respectively. This new system will have increased functionality, assigning a single designated time keeper role within each department and enhanced monitoring tools at both the departmental and central level. In conjunction with the system implementation, the University is updating its HR policies and plans to stress the responsibilities for handling sick time and terminations as part of this policy update.

All users of the new HR/payroll system must take the online training programs designed for specific roles such as time keeping, payroll, and purchasing. Upon completion of each training program, these employees must also demonstrate proficiency in the use of the new system by taking and passing formal online tests prior to receiving access privileges to use the system. New hires into positions requiring use of the system must also take the training and pass the tests prior to being provided access privileges. The training and test records will be maintained for each employee.

### **Auditors' Response**

The actions BU states that it has taken to strengthen policies and procedures for the managing, recording and reporting of employee sick leave are responsive to the finding and recommendation. However, the University's statement in its response that "Departmental personnel administrators are responsible for communicating personnel actions such as terminations and leaves of absence to the Office of Human Resources and Payroll" is (1) not consistent with statements made by the CISM departmental administrator, (2) not documented in the Boston University policy statements provided during this audit, and (3) illustrative of the very crux of this finding, which is that departmental personnel administrators are also the individuals who initiate personnel and payroll transactions and receive payroll checks for distribution (when direct deposit is not elected). To rely on these individuals to also advise Human Resources of employee terminations is an inadequate segregation of duties. As stated in the finding, there is no process or requirement in place requiring that someone independent of the payroll initiation and distribution functions notify a party outside of the department where they work, such as the University's Office of Human Resources, when a non-student employee is terminated.

This finding should not be closed until NSF determines that the recommendation has been adequately addressed and the proposed corrective actions have been satisfactorily implemented.

This report is intended solely for the information and use of the Trustees of Boston University's management, NSF, the University's cognizant Federal audit agency, the Office of Management and Budget, and the Congress of the United States, and is not intended to be and should not be used by anyone other than these specified parties.

McBride, Lock & Associates  
October 15, 2010

**FINANCIAL SCHEDULES AND  
SUPPLEMENTAL INFORMATION**

**The Trustees of Boston University**  
National Science Foundation Award No. ATM-0120950  
Schedule of Award Costs  
Award Period: August 1, 2002 – July 31, 2012  
Audit Period: August 1, 2002 – December 31, 2009  
Interim

Cost Category	Approved Budget	(A) Claimed	Costs	Adjustments	Claimed Costs After Adjustments	Questioned Costs Schedule B
<b>Direct Costs:</b>						
Salaries and wages	\$ 3,231,009	\$ 2,891,836		\$ -	\$ 2,891,836	\$ -
Fringe benefits	713,158	657,707		-	657,707	-
Equipment	438,210	391,235		-	391,235	-
Travel	322,876	341,659		-	341,659	-
Participant support	388,451	290,186		-	290,186	-
<b>Other direct costs:</b>						
Materials and supplies	27,932	30,325		-	30,325	-
Publication costs	43,954	37,872		-	37,872	-
Consultant services	18,000	-		-	-	-
Computer services	22,495	50,988		-	50,988	-
Subcontracts	24,093,087	19,997,158		-	19,997,158	412,400
Other	209,360	311,248		-	311,248	-
Residual funds (B)	(89,451)	-		-	-	-
<b>Total Direct Costs</b>	<b>\$ 29,419,081</b>	<b>\$ 25,000,214</b>		<b>\$ -</b>	<b>\$ 25,000,214</b>	<b>\$ 412,400</b>
<b>Indirect Costs</b>	<b>██████████</b>	<b>██████████</b>		<b>-</b>	<b>██████████</b>	<b>-</b>
<b>Total</b>	<b>█ ██████████</b>	<b>\$ █ ██████████</b>		<b>\$ -</b>	<b>█ ██████████</b>	<b>\$ 412,400</b>
Cost sharing to June 30, 2009	\$ 7,908,358	\$ 8,713,453		\$ -	\$ 8,713,453	\$ 174,397

(A) The total claimed costs agree with the total expenditures reported by TBU on the Federal Financial Report – Federal Share of Net Disbursements as of the quarter ended December 31, 2009. Claimed costs reported above are taken directly from TBU’s books of accounts.

(B) The Residual funds category is to be used only for budgets for incremental funding requests on continuing grants.

See Accompanying Notes to the Financial Schedule

**The Trustees of Boston University**  
**National Science Foundation Award No. ATM-0120950**  
**Schedule of Questioned Costs**  
**From August 1, 2002 to December 31, 2009**

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**Subcontracts – Questioned Costs of \$412,400**

All costs questioned pursuant to this audit were costs claimed by subawardees and reimbursed by TBU. These questioned costs were charged by the University of Colorado University Corporation for Atmospheric Research (UCAR), University of Colorado at Boulder (CU-Boulder) and Dartmouth University, and consist of the following:

	<u>Questioned Costs</u>	<u>Questioned Cost Share</u>
<b><u>University Corporation for Atmospheric Research (UCAR)</u></b>		
1. Bond principal payments charged as depreciation on a computer without basis for allocation to award	\$ 60,000	\$ -
2. Interest Costs on bond payment	4,645	-
3. Direct charging of indirect costs such as telephone, postage and Federal Express charges	11,603	-
4. Gifts to workshop participants such as tote bags, calculators and mouse pads	3,491	-
5. Spanish translation of web site allocated 50% to CISM	4,556	-
6. Foreign worker visa application fee	500	-
7. Management fee (not approved by NSF)	143,165	-
8. Foreign travel (not approved by NSF)	28,698	-
9. Vendor discounts offered to workshop participants on books, software and site licenses, claimed as cost share	-	157,226
	<u>\$ 256,658</u>	<u>\$ 157,226</u>
<b><u>University of Colorado at Boulder (CU-Boulder)</u></b>		
1. Foreign travel incurred without advance approval	\$ 71,787	\$ -
2. Moving expenses from London to Boulder for staff	6,000	-
3. Consultant charges exceeding allowable rate and absence of expense documentation	25,624	17,171
4. Incorrect base salary charged for Principal Investigator	4,172	-
5. Payroll costs charged without certified effort reports	13,333	-
6. Direct charging of indirect costs	673	-
	<u>\$ 121,589</u>	<u>\$ 17,171</u>
<b><u>Dartmouth</u></b>		
1. Payroll costs charged without certified effort report	\$ 34,153	\$ -
Total questioned costs and questioned cost share	<u>\$ 412,400</u>	<u>\$ 174,397</u>

**Cost Share - Questioned Costs of \$174,397**

The \$174,397 of questioned cost sharing represents costs that have been claimed as cost share which are not allowable costs pursuant to federal cost principles. The questioned cost sharing amounts are further discussed in Schedule C.

**The Trustees of Boston University**  
 National Science Foundation Award Number ATM-0120950  
 Schedule of Cost Sharing  
 For the period from August 1, 2002 to December 31, 2009

Cost Sharing Required	Cost Sharing Claimed	(A) Questioned Cost Share	Actual Accepted Cost Share	(B) At Risk Cost Share
\$ 7,908,358	\$ 8,713,453	\$ 174,397	\$ 8,539,056	NA

(A) Questioned cost share consists of the following:

1. Vendor discounts of \$157,226 were improperly claimed as cost sharing by subrecipients. UCAR claimed as cost share the vendor discounts offered to conference participants, primarily school district personnel, for books, software and software licenses. The vendors provided discounts of approximately 40% to 50% off of the retail price of the software and licenses, and also assigned a value to time spent by employees of the software company attending and instructing conference participants in the use of the company's software. Note that accepted cost share of \$8,556,227 which takes into consideration the questioned cost share, exceeds the cost sharing requirement of \$7,908,358.
2. Consultant costs of \$42,795 were charged at rates exceeding the allowable amount governed by the maximum rate paid to an Executive Schedule Level IV Federal employee (exclusive of indirect cost, travel, per diem, clerical services, fringe benefits and supplies), and without documentation to support the consultant's expenses. Total consultant costs charged (\$42,795) were questioned; \$25,624 was questioned as a direct charge to the award and \$17,171 was questioned as cost share. This item is discussed further in Finding 1.

(B) At Risk Cost Sharing is the amount of required cost sharing that has not been met at the time of the audit, but which the awardee still has time to meet before the end of the award period.

**The Trustees of Boston University**  
 National Science Foundation  
 Award Number ATM-0120950  
 Summary Schedules of Awards Audited and Audit Results  
 Period from August 1, 2002 through December 31, 2009

**Summary of Awards Audited**

<b>Award Number</b>	<b>Award Period</b>	<b>Audit Period</b>
ATM-0120950	August 1, 2002 – July 31, 2012	August 1, 2002 – December 31, 2009

<b>Type of Award</b>	<b>Award Description</b>
Cooperative Agreement	ATM-0120950 is a cooperative agreement awarded to TBU for a Science and Technology Center - the Center for Integrated Space Weather Modeling (CISM)). The goal of this Center is to develop computer models that can predict space weather from the surface of the sun to the Earth’s surface and, ultimately, to better protect the US technological systems that are affected by conditions in the space environment.

**Summary of Questioned, Unresolved, and Unsupported Costs by Award**

<b>Finding</b>	<b>Non-Compliance and/or Internal Control</b>	<b>Internal Control Finding</b>	<b>Material, Significant or Other?</b>	<b>(A) Amount of Questioned Costs Affected</b>	<b>(A) Amount of Questioned Cost Share Affected</b>	<b>Amount of Claimed Costs Affected</b>	<b>Amount of Unsupported Costs Questioned</b>
1. Lack of adequate fiscal monitoring of subawardees	Non-compliance and Internal Control	Yes	Significant Deficiency	\$ 412,400	\$ -	\$19,997,158	\$47,486
2. Cost share commitments are not adequately monitored, accounted for or reported	Non-compliance and Internal Control	Yes	Significant Deficiency	\$ -	\$ 174,397	\$ 8,713,453	\$ -
3. Inadequate monitoring of employee terminations and accrued sick leave is inadequate	Non-compliance and Internal Control	Yes	Significant Deficiency	\$ -	\$ -	\$ 5,785,755	\$ -

Note (A): \$174,397 of questioned cost share was claimed by subawardees and is relevant to both findings 1 and 2. The amount is presented in the above schedule as a component of Finding 2 – Lack of Adequate System to Record and Monitor Cost Share.

The Trustees of Boston University  
Notes to the Financial Schedules  
From August 1, 2002 to December 31, 2009

Note 1: Summary of Significant Accounting Policies

Accounting Basis

The accompanying financial schedules have been prepared in conformity with National Science Foundation (NSF) instructions, which are based on a comprehensive basis of accounting other than generally accepted accounting principles. Schedule A-1 has been prepared by the Trustees of Boston University from the Federal Financial Reports submitted to NSF and TBU's accounting records. The basis of accounting utilized in preparation of these reports differs from generally accepted accounting principles. The following information summarizes these differences:

A. Equity

Under the terms of the award, all funds not expended according to the award agreement and budget at the end of the award period are to be returned to NSF. Therefore, the awardee does not retain equity in the award and any excess cash received from NSF over final expenditures is due back to NSF.

B. Equipment

Equipment is charged to expense in the period during which it is purchased instead of being recognized as an asset and depreciated over its useful life. As a result, the expenses reflected in the Schedule of Award Costs include the cost of equipment purchased during the period rather than a provision for depreciation.

Except for awards with nonstandard terms and conditions, title to equipment under NSF awards vests in the recipient, for use in the project or program for which it was acquired, as long as it is needed. The recipient may not encumber the property without approval of the federal awarding agency, but may use the equipment for its other federally sponsored activities, when it is no longer needed for the original project.

C. Inventory

Minor materials and supplies are charged to expense during the period of purchase. As a result, no inventory is recognized for these items in the financial schedules.

D. Income Taxes

The University is a component unit of the State of Massachusetts and is exempt from income taxes under Section 115 of the Internal Revenue Code. It is also exempt from State of Massachusetts income taxes.

The departure from generally accepted accounting principles allows NSF to properly monitor and track actual expenditures incurred by the awardee. The departure does not constitute a material weakness in internal controls.

**The Trustees of Boston University**  
Notes to the Financial Schedules  
From August 1, 2002 to December 31, 2009

Note 2: NSF Cost Sharing and Matching

The University is required by the award terms to provide cost share equal to 30% of NSF-funded costs. Below are the cost share requirements and actual cost share as of July 31, 2009, the most recent date for which cost share was certified by the University and its subawardees:

Award Number	Cost Share Required	Cost Share Claimed	Unallowable Cost Share	Net Cost Share	Share Over/(Under) Required
0120950					
Total	<u>\$ 7,908,358</u>	<u>\$ 8,713,453</u>	<u>\$ 174,397</u>	<u>\$ 8,539,056</u>	<u>\$ 630,698</u>

Note 3: Indirect Cost Rates

The University's indirect cost rate is negotiated with the Department of Health and Human Services. The rate is a final rate which is applied to modified total direct costs. The indirect cost rate applied to award ATM-012095 was as follows:

<u>Year</u>	<u>Rate</u>
FY 03	
FY 04	
FY 05	
FY 06	
FY 07	
FY 08	
FY 09	

**APPENDIX A – STATUS OF PRIOR REVIEW  
FINDINGS**

**Status of Prior Review Findings**

In June of 2005, NSF made a site visit to TBU to evaluate policies and procedures for charging indirect costs and monitoring subawardees of the Center award. The site visit identified weaknesses in TBU's fiscal and administrative functions, as described below. The findings, recommendations and current status are set forth in the following table.

<b><u>Finding</u></b>	<b><u>Recommendation</u></b>	<b><u>Status</u></b>
1. The frequency of effort reporting was less than that stated in OMB Circular A-21	The University should obtain written approval of its alternate effort reporting schedule with its cognizant Federal agency.	The University's cognizant agency has approved the effort reporting schedule.
2. The subaward budget provided funds for gifts, which are not eligible for reimbursement from Federal funds.	The University should ensure that subawardee payments are made consistently with Federal cost principles, are properly classified on sub-awardee ledgers and that indirect costs are charged appropriately.	Subaward charges for gifts were noted during this audit. These gift items were in the form of calculators, tote bags and mouse pads given to workshop participants (see finding 1).

**APPENDIX B – AWARDEE’S COMMENTS  
TO REPORT**

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**Management's Response to the Independent Auditors' Report on  
National Science Foundation Award Number ATM 0120950  
Center for Integrated Space Weather Modeling (CISM)  
For the Period from August 1, 2002 to December 31, 2009**

**THE TRUSTEES OF BOSTON UNIVERSITY RESPONSE TO THE EXECUTIVE SUMMARY**

Boston University takes its responsibility for stewardship over federal funding very seriously. As such, we have devoted significant resources since this audit commenced more than a year ago to ensure that the audit of NSF Award ATM-0120950 accurately represents our internal control environment. The unreasonably short time period between our receipt of the draft report on March 3, 2011 and the arbitrary deadline of March 23, 2011 provided to TBU to provide a draft response significantly limits our ability to validate the accuracy of the questioned costs referenced throughout this report as well as provide an adequate response. While we understand that audit issues are typically resolved during Audit Resolution, as stated in our further responses, we believe some of these findings are without merit and are concerned that erroneous report findings could unfairly harm the University's reputation. As referenced in this report, all of the questioned costs are subawardee expenses which will require communication and thorough review of documentation with the subawardees to validate the accuracy of the findings. To ensure the NSF OIG and TBU obtain the highest quality results and the objectives of the audit are achieved, we believe additional time of up to a month should be provided to develop a fully considered and accurate management response. Subject to its request for this additional time, TBU has provided responses to the best of its ability to each of the three findings contained herein.

**Finding No. 1: Lack of Adequate Fiscal Monitoring of Subawardees**

The issues described in this finding have been addressed with development and implementation of appropriate policies and procedures. Upon notification of these deficiencies in April 2010, Boston University immediately began developing and implementing policies and procedures including, but not limited to: a Subrecipient Manual, Annual Subrecipient Certification, Prequalifying Questionnaire, Risk Analysis tools, and Subrecipient Invoice Review Guidelines which were fully implemented in November 2010 that fully address the recommendations noted above.

Additionally, ongoing training is provided to Post Award Financial Operations' and Office of Sponsored Programs' staff to ensure consistency, completeness, and appropriate escalation steps are taken when circumstances arise that may warrant adding additional language to subaward agreements, desk audits, and other appropriate reviews as necessary.

We strongly disagree with disallowing \$189,702 of the \$468,976 questioned costs. Specifically:

- \$102,226 of foreign travel is allowable. The terms and conditions of the award refer to the NSF Grant General Conditions (GC-1) which state "the requirements for prior approval detailed in the governing costs principles are waived." Additionally, per clarification of clause H.5.a in NSF's Science and Technology Center Cooperative Agreement provided by NSF's Grants and Agreements Office to NSF's Program Officer "the clause does not require NSF approval for individual U.S. or foreign students or researchers to participate in Center supported projects and activities onsite or abroad. Rather, the clause covers collaborative arrangements between the Center and foreign governments

or foreign institutions, such as written agreements, memoranda, or subawards, or other institution to institution arrangements, such as a university exchange program.”

- \$87,476 payroll costs charged without certified effort reports should not be disallowed.
  - The Dartmouth effort report supporting \$34,153 of the questioned costs was certified. The fact that the certifier was unable to attest to the penny the dollar amount paid in salary does not negate the certification.
  - In regards to CU-Boulder, we have an effort report supporting the \$13,332 finding. Additionally, \$39,991 represents a PAR that was certified but unable to be located. To correct this issue, the subawardee would need to ensure that the PAR is appropriately certified and on file.

In order to fully respond to the circumstances regarding the remaining \$279,274 questioned costs and \$157,266 in questioned cost share described in this finding, our prior request for further cost detail will need to be fulfilled in order for examination and determination of the validity of the proposed disallowances. TBU was provided with some limited documentation by the auditors on March 21st and March 23rd; however, the information was not in an adequate format nor in a timely manner to include substantive management responses for the March 23rd deadline.

Additionally, as part of the review of all questioned costs identified during this audit, we will review the appropriateness of any management fees erroneously claimed on the NSF award since its inception.

**Finding No. 2: Cost Share Commitments Are Not Adequately Monitored, Accounted For or Reported**

The University disagrees with the finding stating costs reported as cost share items included significant unallowable costs for \$157,226 from one subawardee. More documentation is required to fully respond to the finding.

The University is implementing a new financial accounting system on July 1, 2011. The accounting system will include companion accounts designated to record the University's cost share activity per project. This will provide more transparency improving the management of cost share.

Additionally, the University will develop and implement written policies and procedures for managing cost share and provide training to assist in ensuring that cost share is allowable, allocable, and accurately recorded and reported. The University will develop and implement adequate reconciliation procedures between our financial system, cost sharing reports, subawardees documentation, and cost share certifications to NSF.

### **Finding No. 3: Monitoring of Employee Terminations and Accrued Sick Leave is Inadequate**

The University disagrees with the assertion that existing policies and procedures for employee termination and employee sick leave are inadequate.

Departmental personnel administrators are responsible for communicating personnel actions such as terminations and leaves of absence to the Office of Human Resources and Payroll through the University's electronic "turnaround" form, a part of the H/R Payroll system. CISM's turnarounds are updated by the College of Arts and Sciences' (CAS) Business Office.

The Office of Human Resources provides training to these administrators in the use of the turnaround system and communicates with them regularly. The importance of timely notification of any change in status is strongly emphasized during training; and personnel administrators are aware of the financial and compliance consequences to the University, the department and to sponsors when notification of a change in status is not made timely.

Additionally, it must be noted that CISM has adequate controls for monitoring grant activity that allowed them to also identify the overpayment made to the terminated Senior Research Associate on June 30, 2008. Specifically, on a monthly basis the Assistant Director prepares, reviews, and provides the Principal Investigator with an analysis of expenses charged to his awards, including faculty and staff effort. Preparation of this analysis includes a review of CISM's encumbrance system that CISM uses to assist in ensuring that employees are accurately paid.

Timing was a factor that led to the terminated employee's self discovery of the overpayment. Specifically, the Senior Research Associate ended his employment with the University on June 10, 2008. On July 2nd, two days after the payroll was deposited in the terminated employee's account, he informed CISM's Assistant Director of his overpayment.

The Assistant Director of CISM provided a copy of the employee's termination letter to College of Arts and Sciences) Business Office to inform them of the termination in June to ensure that the turnaround was appropriately updated. Unfortunately, the turnaround was not updated to reflect the employee's termination resulting in him being paid for the entire month of June. The Assistant Director contacted the CAS Business Office who stated that they were unaware of the termination and that the Senior Research Associate would need to reimburse the University which he promptly did in August.

As previously stated in this audit report, the University policy does require that supervisors maintain complete and accurate records of sick leave accruals and usage for each employee under his or her supervision. This is referenced not only in the Boston University Handbook, but also Human Resources online Manager's Toolkit. Unfortunately, this practice was not followed at CISM. Representatives from Human Resources will work with CISM to provide additional guidance on this matter to assist with compliance.

The University is implementing a new HR/Payroll system in July 2011 and January 2012 for nonexempt and exempt employees, respectively. This new system will have increased functionality, assigning a single designated time keeper role within each department and enhanced monitoring tools at both the departmental and central level. In conjunction with the system implementation, the University is updating its HR policies and plans to stress the responsibilities for handling sick time and terminations as part of this policy update.

All users of the new HR/payroll system must take the online training programs designed for specific roles such as time keeping, payroll, and purchasing. Upon completion of each training program, these employees must also demonstrate proficiency in the use of the new system by taking and passing formal online tests prior to receiving access privileges to use the system. New hires into positions requiring use of the system must also take the training and pass the tests prior to being provided access privileges. The training and test records will be maintained for each employee.



**Dated:** March 23, 2011

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