



**National Science Foundation**

4201 Wilson Boulevard  
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Office of Inspector General

**MEMORANDUM**

**DATE:** July 9, 2009

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

Karen Tiplady, Director  
Division of Grants and Agreements

**THRU:** Deborah H. Cureton, /s/  
Associate Inspector General for Audit  
Office of Inspector General

**FROM:** Laura Ann Koren, Audit Oversight Manager /s/  
Office of Inspector General

**SUBJECT:** NSF OIG Audit Report No. 09-1-010,  
Agreed Upon Procedures Internal Control Review of  
Carnegie Institution of Washington

The Office of Inspector General (OIG) engaged Cotton & Company LLP to perform an agreed upon procedures Internal Control Review of Carnegie Institution of Washington (CIW). The OIG initiated this agreed upon procedures review because four former CIW employees were prosecuted and convicted of embezzling over \$532,222 from 2000 to 2006 while employed at CIW. Approximately \$200,000 of this amount was embezzled from NSF awards. [REDACTED]

The objectives of the agreed upon procedures were to:

- Determine whether CIW's internal control systems are adequate to properly accumulate, track, and monitor its costs and billings under NSF grants in compliance with NSF and Federal requirements; and,
- Determine whether CIW's corrective action plan to improve its internal controls, initiated by CIW after the second embezzlement, was implemented and operating effectively.

Cotton & Company performed fieldwork on this engagement, for the most part, from June through September 2007 and sampled CIW transactions posted to CIW's NSF grants from the

period January 2004 through March 2007. CIW is a consistent recipient of NSF grant funds and currently has 47 NSF grants totaling approximately \$31 million. Therefore, it is important that CIW maintain adequate financial and administrative internal controls to prevent embezzlements from recurring in the future.

This agreed upon procedures engagement was conducted in accordance with Attestation Standards established by the American Institute of Certified Public Accountants and the standards applicable to attestation engagements contained in *Government Auditing Standards* issued by the Comptroller General of the United States. Cotton & Company's agreed upon procedures report on the Internal Control Review of the Carnegie Institution of Washington is included as an attachment to this memorandum.

### **Summary Results of the Internal Control Review**

Overall, Cotton & Company found that CIW has not fully developed and implemented adequate financial and administrative policies and procedures for the entire organization. Without internal control over financial and business management, CIW continues to have internal control weaknesses that could result in recurring embezzlements and that continue to affect CIW's management of NSF grant funds.

The auditors noted continuing internal control deficiencies even though CIW had hired its external auditors, KPMG LLP, after its second embezzlement in 2004 to review processes and internal controls to help strengthen CIW's financial management. CIW developed a corrective action plan in response to KPMG's internal control report that did not address or fully address all of KPMG's recommendations. Further, CIW developed institution-wide federal grant financial and administrative policies and procedures but these policies and procedures did not provide adequate or sufficient guidance in areas such as journal entries, safeguarding of blank checks, and segregation of duties in procurement and disbursement processes. Moreover, none of the seven CIW departments adequately implemented these policies and procedures.

The auditors also found that grant monitoring practices were inadequate at four of the seven CIW departments; CIW did not have standardized, institution-wide, written journal entry procedures for departments to follow; six of the seven CIW Departments had inadequate segregation of duties or inadequate controls over the disbursement process; six of the seven CIW departments did not adhere to CIW's institution-wide labor effort reporting procedures; and, CIW's institution wide purchase-order procedures were inadequate because they did not define the dollar threshold for when those procedures should be utilized. In addition, two of the seven CIW departments did not use purchase orders as part of their procurement process.

Additionally, other internal control weaknesses came to the attention of the auditors including the lack of segregation of cash receipt duties and the lack of adherence to procedures for cash receipt processing at OCIW; inadequate inventory control at GEO and the Department of Plant Biology (PBIO); and lack of adherence to CIW and federal travel policies at the Department of Terrestrial Magnetism (DTM) and OCIW.

The auditors made a number of recommendations to address these internal control weaknesses including recommendations that NSF ensure that CIW's Board of Trustees fully implement recommendations in CIW's 2004 KPMG internal control report and provide ongoing monitoring to verify that corrective actions are taken; fully develop and implement adequate financial and administrative policies and procedures for the entire organization; periodically evaluate business practices at departments to ensure adequate implementation of CIW's policies and procedures; develop and implement a policy requiring all CIW department directors to monitor the financial and administrative federal grant processes at their respective departments; hire or delegate an individual at P Street to serve as a business manager to approve and administer federal grant financial and administrative affairs of the P Street principal investigators (PI)s; implement policies and procedures over journal entries for all CIW Departments; develop and implement institution-wide policies and procedures that require all CIW departments to segregate disbursement functions adequately and require appropriate levels of approval and certification of payments; ensure that institution-wide labor-effort reporting procedures are adequately implemented and adhered to by all CIW departments; develop and implement procedures that require all personnel to notify supervisors when leave is requested and taken and require labor-effort reports to accurately reflect such leave; and establish institution-wide written procedures requiring use of purchase orders for the authorization and budgeting of all CIW department purchases to include dollar thresholds and specific guidelines for purchase-order use.

The auditors also recommended that NSF ensure that OCIW properly segregate duties related to cash receipts, make deposits in accordance with its own written procedures, and eliminate its separate bank account for incoming checks; require GEO and PBIO to properly identify federal assets and establish a procedure that ensures that all departments conduct annual asset inventories; and formulate and implement a monitoring process that will ensure that all departments comply with the Office of Management and Budget (OMB) and CIW travel regulations regarding meal and lodging costs.

In its response, CIW noted that since completion of the auditor's fieldwork, which took place for the most part from June through September 2007, CIW indicated that it has made improvements to its policies, procedures and financial software, including installing a new accounting and administrative system. Accordingly, CIW believes the report does not reflect the current state of its internal controls. CIW's response details improvements to its policies and procedures that it states that it has already made or will be made. We recognize that CIW was in the process of revising its policies, procedures, and controls both during and subsequent to the auditor's fieldwork. The majority of those improvements are proposed and therefore reflective of CIW's current state of internal controls.

We consider the issues in this report to be significant. Accordingly, we request that your office work with CIW to develop a written Corrective Action Plan detailing specific actions taken and/or planned to address each report recommendation. Milestone dates should be provided for corrective actions not yet completed.

In accordance with OMB Circular A-50, please coordinate with our office during the 6-month resolution period to develop a mutually agreeable resolution of the report findings. Also, the

report findings should not be closed until NSF verifies that all the recommendations have been adequately addressed and the proposed corrective actions have been satisfactorily implemented.

### **OIG Oversight of Attestation Engagement**

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

- Reviewed Cotton & Company's approach and planning of the agreed upon procedures engagement;
- Evaluated the qualifications and independence of the auditors;
- Monitored the progress of the engagement at key points;
- Coordinated periodic meetings with Cotton & Company and OIG management to discuss engagement progress, findings and recommendations;
- Reviewed the engagement report prepared by Cotton & Company to ensure compliance with Generally Accepted Government Auditing Standards and American Institute of Certified Public Accountants standards as they relate to attestation engagements and Office of Management and Budget Circulars; and,
- Coordinated issuance of the Internal Control Review report.

Cotton & Company is responsible for the attached report on Carnegie Institution of Washington and its internal controls and the conclusions expressed in that report. The NSF OIG does not express any opinion on the Carnegie Institution of Washington's internal controls, or the conclusions presented in the Cotton & Company report.

We thank you and your staff for the assistance extended to us during the audits. If you have any questions about the report, please contact me at (703) 292-8456.

Attachment: Internal Control Review Report of Carnegie Institution of Washington

**CARNEGIE INSTITUTION OF WASHINGTON  
INTERNAL CONTROL REVIEW**

**NATIONAL SCIENCE FOUNDATION  
OFFICE OF INSPECTOR GENERAL**



Cotton & Company LLP  
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Alexandria, Virginia 22314

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## EXECUTIVE SUMMARY

### BACKGROUND

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The National Science Foundation (NSF), Office of Inspector General (OIG), engaged Cotton & Company LLP to perform agreed upon procedures to assist the NSF OIG in determining if Carnegie Institution of Washington's (CIW) internal control systems are adequate to properly accumulate, track, and monitor its costs and billings under NSF grants in compliance with NSF and federal requirements. The objective was also to determine if CIW's corrective action plan was implemented and is operating effectively.

The NSF OIG initiated this agreed-upon-procedures review, because four former CIW employees were prosecuted and convicted of embezzling over \$532,222 from 1994 to 2006 while employed at CIW. Approximately \$200,000 of this amount was embezzled from NSF awards. Employees were from the Carnegie Headquarters Department (P Street), Carnegie Observatories (OCIW), and Carnegie Geophysical Laboratory (GEO).

In response to the first two of three instances of embezzlement, CIW hired its external auditors, KPMG, to review processes and internal controls and provide recommendations to help CIW strengthen its financial management. Specifically, KPMG found that CIW lacked adequate processes and procedures for safekeeping of its assets; lacked adequate policies and procedures for accounting and financial management at the Departments; lacked adequate segregation of duties at the department level; lacked supervisory oversight and monitoring of the departments' internal controls and processes; lacked adequate effort reporting process; lacked a standardized procurement process throughout the institution; and, lacked a standardized backup process for departments' accounting records and operational data.

In its 2004 Internal Control Review, KPMG recommended that CIW implement processes and procedures for safekeeping of its assets, including requiring the departments to conduct annual asset inventories; provide departments with policies and procedures for accounting and financial management; increase supervisory checks and balances to compensate for the lack of segregation of duties at departments; revise the organizational structure to either include a Chief Financial Officer position or to enhance the responsibilities and authority of the Director of Administration and Finance; automate the effort reporting process by allowing employees to enter their percentage of effort directly into the system that tracks efforts; streamline the purchasing process and use an automated procurement system; create a Chief Information Officer position and verify that each department is adequately backing up their accounting data and operational data.

In response to KPMG's recommendations, CIW formulated a corrective action plan that indicated, among other things, that it would develop institution-wide policies and procedures that may be tailored to each Department's circumstances; implement an automated procurement system; review and enhance its effort reporting process; review and enhance the financial reporting processes throughout the Institution; and, appoint a new Chief Information Officer and develop institution-wide procedure for backing up data. CIW's Corrective Action Plan did not address the KPMG recommendation of creating the Chief Financial Officer position or enhancing the responsibilities and authorities of the Director of Administration and Finance.

CIW's President did, however, enhance responsibilities and authority of the Director of Administration and Finance over CIW department business managers in March 2007.

## **OBJECTIVES**

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The objectives of this engagement were to perform agreed-upon procedures to assist the NSF OIG in determining whether CIW's internal control systems are adequate to properly accumulate, track, and monitor its costs and billings under NSF grants in compliance with NSF and federal requirements. In addition, the objective was also to determine whether CIW's corrective action plan was implemented and is operating effectively. We performed fieldwork on this engagement, for the most part, from June through September 2007. Our work included sampling CIW transactions posted to its NSF grants from the period January 2004 through March 2007. During the period of our review and thereafter, CIW continued to modify and revise policies and procedures to strengthen its internal controls.

## **RESULTS AND RECOMMENDATIONS**

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CIW has not fully developed and/or implemented adequate financial and administrative policies and procedures for the entire organization. Without internal control over financial and business management, CIW continues to have internal control weaknesses that could result in recurring embezzlements and that continue to affect CIW's management of NSF grant funds. Results of our agreed-upon procedures are detailed in Appendix A.

## **CARNEGIE INSTITUTION OF WASHINGTON RESPONSE**

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We conducted an exit conference with CIW on April 22, 2009. We presented CIW with a draft report, to which they responded in writing on June 1, 2009. We have included CIW's response in summary after each recommendation under the caption Management Comments and in its entirety in Appendix C to this report.

In its response, CIW noted that since completion of our fieldwork, which took place for the most part from June through September 2007, CIW indicated that it has made improvements to its policies, procedures and financial software, including installing a new accounting and administrative system. Accordingly, it believes the report does not reflect the current state of its internal controls. CIW's response details improvements to its policies and procedures that it states it has already made or will be made. We recognize that CIW was in the process of revising its policies, procedures, and controls both during and subsequent to our fieldwork. The majority of those improvements are proposed and therefore the report is reflective of CIW's current state of internal controls. Those corrective actions, as described in CIW's comments, are responsive to our recommendations if properly implemented. We do, however, recommend that NSF confirms as part of the audit resolution process that proposed and revised policies and procedures have been adequately implemented.



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## INTRODUCTION

### **BACKGROUND**

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The National Science Foundation (NSF), Office of Inspector General (OIG), engaged Cotton & Company LLP to perform agreed-upon procedures to assist the NSF OIG in determining if Carnegie Institution of Washington's (CIW) internal control systems were adequate to properly accumulate, track, and monitor its costs and billings under NSF grants in compliance with NSF and federal requirements. The objective was also to determine if CIW's corrective action plan was implemented and operating effectively.

### **Information about Carnegie Institution of Washington**

Carnegie Institution of Washington (CIW) was founded in 1902 as a not-for-profit organization for scientific discovery. It has seven departments, which include the administrative headquarters department, referred to as P Street, located in Washington, DC. All departments, listed below, have independent scientific pursuits and employ principal investigators (PIs). CIW is a consistent recipient of NSF grant funds and currently has 47 NSF grants totaling approximately \$31 million.

<b><u>Department</u></b>	<b><u>Location</u></b>
Headquarters Department (P Street)	Washington, DC
Department of Terrestrial Magnetism (DTM)	Washington, DC (shared with GEO)
Geophysical Lab (GEO)	Washington, DC (shared with DTM)
Department of Embryology (EMB)	Johns Hopkins University Campus, Baltimore
Observatories (OCIW)	Pasadena, California
Department of Plant Biology (PBIO)	Stanford University, Palo Alto, California (shared with DGE)
Department of Global Ecology (DGE)	Stanford University, Palo Alto, California (shared with PBIO)

With the exception of P Street, each department has a business office headed by a business manager or fiscal officer to handle financial and administrative matters generated from PI grant activity. PBIO and DGE share a business office on the Stanford University campus, and one business manager serves both departments. P Street does not have a business manager or fiscal officer to oversee PI grant activities. However, in March 2007, CIW's President did enhance the responsibilities and authority of the Director of Administration and Finance over departmental business managers.

### **Three Instances of Embezzlement**

Four former CIW employees ( [REDACTED] ) were prosecuted and convicted of embezzling over \$532,222 from 1994 to 2006 while employed at CIW. Approximately \$200,000 of this amount was embezzled from NSF awards.

In the first instance of embezzlement, a former [REDACTED] embezzled more than \$200,000 from federal award funds between 1994 and 1999. The Co-PI's scheme included paying his spouse over \$83,000 in salary for false time-and-effort reports that he forged; converting property purchased with award funds to [REDACTED] personal use; and fabricating invoices and receipts for purchases to make them appear award-related when, in fact, they were items purchased for

his family and home. Because CIW did not have adequate controls in place to verify, validate, or monitor the [REDACTED] purchases or labor effort charged to NSF grants, these illegal activities continued undetected for 5 years. The [REDACTED] ultimately pled guilty in federal district court to one felony count of embezzling funds from a program receiving federal funds. This resulted in a sentence of 12-months incarceration and restitution in the amount of \$202,000.

In the second instance of embezzlement, a former [REDACTED] pled guilty in state court to 6 felony counts of grand theft and 12 felony counts of forgery involving a scheme by which she forged checks to fabricated vendors between 2001 and 2004, totaling \$132,222 in stolen funds. Once again, Carnegie did not have adequate controls in place to detect or prevent multiple payments to fabricated vendors, which resulted in the embezzlement scheme going undetected for 3 years. This embezzlement resulted in a sentence of 361 days of incarceration, 5 years of probation, and restitution in the amount of \$238,240, which included the total amount stolen plus investigative and audit costs incurred by CIW for this matter.

Most recently, one former [REDACTED] [REDACTED] pled guilty in federal district court for engaging in a long-term scheme between 2002 and 2006 to use their corporate credit cards for unauthorized personal expenditures exceeding \$200,000 in stolen funds. The two [REDACTED] involved in the scheme worked within the same business office and served as the exclusive approving official for each other's illegal purchasing activity. Again, CIW lacked adequate internal controls to prevent or detect aberrant approvals and authorizations within its organization. These episodes of embezzlement resulted in a sentence of incarceration, probation, and restitution for the [REDACTED], who held the more senior position, and a sentence of probation and restitution for the former accounts payable manager.

### **CIW Response to Embezzlements**

In response to the first two instances of embezzlement, CIW hired KPMG, its external auditors, in 2004 to review processes and internal controls and provide recommendations to help CIW strengthen its financial management. KPMG identified control weaknesses over accounting and financial management that affected CIW's ability to provide adequate oversight of NSF grants and grant funds and made specific recommendations. In response, CIW developed a Corrective Action Plan. The CIW plan did not, however, specifically address the KPMG recommendation to create the Chief Financial Officer position or enhance responsibilities and authorities of the Director of Administration and Finance. However, in March 2007, CIW's President did enhance the responsibilities and authority of the Director of Administration and Finance over the business managers in the departments. CIW also did not fully address all KPMG report recommendations or implement the plan components it did develop.

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

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Our objectives were to perform agreed-upon procedures to assist the NSF OIG in determining if CIW's internal control systems were adequate to properly accumulate, track, and monitor its costs and billings under NSF grants in compliance with NSF and federal requirements. The objective was also to determine if CIW's corrective action plan was implemented and operating effectively. We performed fieldwork on this engagement, for the most part, from June through September 2007 and sampled CIW transactions posted to its NSF grants that occurred over the

period January 2004 through March 2007. During the period of our review and thereafter, CIW continued to modify and revise policies and procedures to strengthen its internal controls.

To achieve these objectives, we obtained and reviewed background information and documentation from NSF, KPMG, and CIW that included financial statement and OMB Circular A-133 audit reports and corresponding work papers, including cycle memorandums and other relevant audit work papers; grant documents, including grant budgets, proposals, and other award documents; internal control review reports; CIW policies and procedures manuals, both at the institution and departmental levels, where existing; and NSF grant correspondence.

We then obtained, reviewed, and gained an understanding of the 2004 KPMG internal control review report and CIW's Corrective Action Plan formulated in response to report recommendations. We determined which of items within these two documents affected NSF award funds.

We then focused the scope of our work on the internal control review recommendations and Corrective Action Plan items that impacted NSF award funds to determine if CIW addressed recommendations made by KPMG in its Corrective Action Plan and if internal control corrective action plan items were implemented and operating as intended.

We next identified all NSF grant awards active at CIW from 2004 to 2006 and selected samples of grants and various internal control accounting cycle items from at least one grant at each CIW department. For sampled transactions at each location, we obtained and reviewed all supporting documentation, tested internal control attributes, and documented if internal control policies and procedures were followed. We also interviewed CIW representatives in each department to determine their understanding of their responsibilities with regard to federal and NSF funds and determined if the CIW Corrective Action Plan was implemented and operating effectively within that department.

This agreed-upon procedures engagement was performed in accordance with standards established by the American Institute of Certified Public Accountants and generally accepted government auditing standards. The sufficiency of these procedures is solely the responsibility of the OIG. We were not engaged to and did not perform an examination, the objective of which would be expression of an opinion on the subject matter. Accordingly, we do not express such an opinion. Had we performed other procedures, other matters might have come to our attention that would have been reported to you.

Results of our procedures are detailed in Appendix A.



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**INDEPENDENT ACCOUNTANT’S REPORT ON APPLYING  
AGREED-UPON PROCEDURES**

Cotton & Company LLP performed the procedures described in Appendix B, which were agreed to by the NSF OIG solely to assist the OIG in evaluating internal controls at CIW. This agreed-upon-procedures engagement was performed in accordance with standards established by the American Institute of Certified Public Accountants and generally accepted government auditing standards. The sufficiency of these procedures is solely the responsibility of the OIG. Consequently, we make no representation regarding the sufficiency of the procedures described below, either for the purpose for which this report has been requested or any other purpose.

We have summarized results of our agreed-upon procedures in Appendix A. We were not engaged to and did not perform an examination, the objective of which would be expression of an opinion on the subject matter. Accordingly, we do not express such an opinion. Had we performed other procedures, other matters might have come to our attention that would have been reported to you.

This report is intended solely for the information and use of the NSF OIG, NSF, and CIW and is not intended to be and should not be used by anyone other than these specified parties.

COTTON & COMPANY LLP

/s/

May 15, 2009

**APPENDIX A**  
**RESULTS OF AGREED-UPON PROCEDURES AND RECOMMENDATIONS**

**APPENDIX A**  
**RESULTS OF AGREED-UPON PROCEDURES AND RECOMMENDATIONS**

**Finding No. 1: Corrective Action Plan Not Fully Implemented**

In response to the first two instances of embezzlement, CIW hired its external auditors, KPMG, in 2004 to review processes and internal controls and provide recommendations to help CIW strengthen its financial management. The KPMG report noted a number of instances of inadequate processes and controls. Some of these are particularly relevant to NSF grant awards; KPMG found that CIW lacked adequate:

- Processes and procedures for safekeeping of its assets.
- Policies and procedures for departmental accounting and financial management.
- Departmental segregation of duties.
- Departmental supervisory oversight and monitoring.
- Time-and-effort reporting systems for federal grants.
- Procurement processes throughout the organization.
- Standardization over backup process for departmental accounting records and operational data.

KPMG recommended in its report that CIW:

- Implement processes and procedures for safekeeping of its assets, including requiring departments to conduct annual asset inventories.
- Provide departments with policies and procedures for accounting and financial management.
- Increase supervisory checks and balances to compensate for the lack of departmental segregation of duties.
- Revise the organizational structure to either include a Chief Financial Officer position or enhance responsibilities and authority of the Director of Administration and Finance.
- Automate the effort-reporting process by allowing employees to enter their percentage of effort directly into the system that tracks efforts.
- Streamline the purchasing process and use an automated procurement system.
- Create a Chief Information Officer position and verify that each department is adequately backing up its accounting /and operational data.

In response to KPMG's recommendations, CIW formulated a Corrective Action Plan that indicated, among other things, that it would:

- Develop institution-wide policies and procedures that may be tailored to each department's circumstances.
- Implement an automated procurement system.
- Review and enhance its effort-reporting process.
- Review and enhance financial reporting processes throughout the institution.
- Appoint a new Chief Information Officer and develop institution-wide procedure for backing up data.

CIW's Corrective Action Plan did not, however, address or fully address all the recommendations in the KPMG report.

CIW's Board of Trustees also conducted its own review and issued its Report of the Review Committee for Administration in November 2006. This report was a summary of CIW's attempt to address its changing administrative and financial systems climate, which the report described as "strained." The report also referenced the CIW structure and noted that it "has led to both inefficiencies and at times ambiguous authority over financial reporting activities."

Further, while the report stated that, in general, department directors and business managers favored the current reporting relationship, a minority view saw benefits for a department business manager having "a dotted line relationship with the Director of Administration and Finance (at P Street)." In addition, the report quoted strong sentiment on the matter of establishing an internal audit function as a mechanism for preventing thefts and strengthening operations.

While the report concluded that the decentralized structure would continue to be the appropriate organization form for CIW, it also concluded that "until there is a common understanding that [CIW] needs standardized, coordinated and timely procedures, it will not solve the problems identified." Finally, the report recommended that business managers have two reporting relationships, to the department director at each CIW location and to the Director of Administration and Finance, and that CIW should seek to strengthen internal controls.

This situation occurred because CIW executive management has historically considered departments to be separate entities with separate scientific missions. When the CIW Board of Trustees conducted its own review in 2006, it noted that "department directors and business managers favored the current reporting relationships where business managers report to departments."

Although CIW's corrective action plan did not address the KPMG recommendation to add a CFO or expand responsibilities of the Director of Administration, CIW's President did enhance responsibilities and authority of the Director of Administration and Finance over the business managers in the departments in March 2007.



## **Recommendation No. 1**

We recommend that NSF's Director of the Division of Grants and Agreements direct CIW's Board of Trustees to fully implement recommendations in the KPMG October 2004 report and provide ongoing monitoring to verify the corrective actions are taken.

### **Management's Comments**

In its response to the draft audit report (Appendix C), CIW stated that:

*We have implemented all the major recommendations in the KPMG report. Nonetheless, we agree that there are some further actions that should be undertaken.*

*In October 2004, Carnegie engaged KPMG to review its internal controls. KPMG made 17 separate recommendations, some with several components, and ranked them as high, medium, or low priority in recognition of the fact that not all items could be addressed simultaneously. Carnegie's action plan to address this report grouped the recommendations into five activity areas. The goal of the action plan was to remedy the findings of control deficiencies, whether through implementation of the KPMG recommendation or through alternative steps that Carnegie determined would achieve the intended goal. The action plan involved several steps that were implemented relatively quickly, such as the appointment of the Chief Information Officer, and other steps that required a longer period, such as the replacing the computerized accounting system with a new financial system.*

*One particular issue highlighted in the draft report is the KPMG recommendation related to organizational structure, as follows:*

*"Revise the organizational structure to either include a Chief Financial Officer position in addition to the Director of Administration and Finance or to enhance the responsibilities and authority of the Director of Administration and Finance."*

*In 2006, Carnegie assessed administrative operations, including organizational structure and reporting responsibilities, through an Administration Review. The review process was directed by the President and involved several members of the Board of Trustees and various outside experts. Prior to and following that review, the President enhanced the authority of the Director of Administration and Finance. In a memorandum dated March 30, 2007, the President informed all affected parties within the Institution that effective immediately:*

*".....Business managers will respond to guidance from the Director of Administration and Finance concerning institution wide matters. In assessing the performance of business managers, department directors will receive input from the Director of Administration and Finance concerning performance on institution wide matters...."*

*Prior to that memo, the President had earlier directed that all hires in business offices in departments must be approved by the Director of Administration and Finance, and that all non-scientific hires in the Institution must undergo a background check, the results of which were to be reviewed at headquarters. The President, in the March 30, 2007 memorandum, further advised that he would periodically review the revised reporting structure to assure its effectiveness. In short, the President did take steps to enhance the responsibilities and the authority of the Director of Administration and Finance, exactly as KPMG had recommended.*

*As a general matter, the report suggests that Carnegie's departments are stand-alone entities that manage all aspects of their own financial operations. This is not the case. To illustrate, billings for most grants and the recording of most revenues for all departments are done at P Street. P Street reviews quarterly the reconciliation of key balance sheet accounts prepared by departments, and makes any required adjustments in coordination with departmental staff. Adjustments to salaries are made only after review and approval by the President. Salaries and effort throughout the Institution are recorded in the general ledger by staff at P Street, following a review to help assure checks and balances. Any corrections to the posting of effort are done at P Street. The P Street office prepares a single set of financial statements for the Institution. Payroll and many human resource functions, such as the management of retirement contributions and health benefits, are centralized. In short, CIW does not operate in a manner that considers all departments to be managing all aspects of their own financial operations in a decentralized fashion. Rather, we consider the combination of headquarters staff and departmental business offices to be an integrated set of activities that manage the financial operations of the Institution and its departments. Or course, the regular meetings of the Standing Working Group serve to reinforce the integrated nature of our business operations.*

*We conclude that the report fundamentally misstates the present relationship between the departments and headquarters, perhaps because the work underlying the report was undertaken so long ago (2007). Nonetheless, to respond further to this finding and recommendation, Carnegie will:*

- *Revise policies and procedures to: strengthen the safeguarding of assets; achieve greater standardization across departments; and document and fully ensure the segregation of duties. These revisions will be issued by October 1, 2009. Some of these steps relate to other findings below.*
- *Put in place a monitoring plan by August 1, 2009. A basic feature of this plan will include the use of an external organization to provide an internal audit function. We have already hired a firm for this purpose. The firm will review departments on a three-year schedule, with the result that at least two departments will be reviewed each year. In*

*addition, as a separate activity, P Street will sample transactions across all departments in select areas each year; the monitoring plan will identify the specific areas to be reviewed by year. The transactions to be sampled will include travel, journal entries, purchase orders, cash receipts, and disbursements. All results of the external review and the internal sampling of transactions will be reported to the President and the Audit Committee of the Board of Trustees.*

### **Cotton & Company's Response**

In response to CIW's comments we did revise the report to state that although the corrective action plan did not address the KPMG recommendation to add a CFO, CIW's president did expand responsibilities of the Director of Administration in March 2007. We also removed the statement the CIW's departments operate independently and manage all aspects of their own financial operations.

The CIW's plan to revise its policies and procedures by October 1, 2009 to strengthen the safeguarding of assets, to achieve greater standardization across departments, and to fully ensure the segregation of duties; and, its statement that it will institute a monitoring plan by August 1, 2009, as described in CIW's comments, if implemented, are responsive to our recommendation. We do, however, recommend that as part of the audit resolution process that NSF confirms that the policies and procedures have been revised and adequately implemented before the recommendation is closed.

### **Finding No. 2: Federal Grant Financial and Administrative Policies and Procedures Not Adequately Developed and Implemented**

CIW developed institution-wide federal grant financial and administrative policies and procedures. The policies and procedures, however, did not provide adequate or sufficient guidance in areas such as journal entries, safeguarding of blank checks, and segregation of duties in procurement and disbursement processes.

CIW anticipated that some departments might supplement and adjust the institution-wide policies and procedures to meet their unique operational requirements. Six of the seven CIW departments adopted the institution-wide policies and procedures. OCIW was the only department to develop its own procedures. None of the CIW departments adequately implemented policies and procedures.

OMB Circular A-110, Subpart C, Post-Award Requirements, Paragraph 21, requires effective control over and accountability for all funds, property, and other assets. Without adequate development and implementation of federal grant financial and administrative policies and procedures, CIW cannot ensure compliance with terms and conditions of its NSF and federal grants. The lack of adequate implementation of federal grant financial and administration policies and procedures also increases the risk of future embezzlements at CIW.

This situation occurred because CIW executive management has historically considered departments to be separate entities with separate scientific missions. While CIW enhanced responsibilities of the Director of Administration and Finance in March 2007 and required that the CIW business managers respond to his guidance concerning institution-wide matters, CIW needs to ensure that this requirement is fully implemented and working as intended.

## **Recommendation No. 2**

We recommend that NSF's Director of the Division of Grants and Agreements direct CIW's Board of Trustees to:

- Require CIW to fully develop and implement adequate financial and administrative policies and procedures for the entire organization.
- Periodically evaluate business practices at departments to ensure adequate implementation of CIW's policies and procedures.

## **Management's Comments**

In its response to the draft audit report (Appendix C), CIW stated that:

*Because the work underlying the report was undertaken between July and October 2007, it could not reflect the many changes that were underway at the time of the review and that were implemented thereafter. We have revised the policies and procedures that you examined. Nonetheless, because we know that we can continue to improve our operations, we will continue to strengthen our financial and administrative policies for the organization and will systematically evaluate practices at departments to ensure implementation of these policies and procedures.*

*In July of 2006, in response to KPMG's internal control review, Carnegie issued institution wide policies and procedures, including financial and administrative policies. The document, available on our website, states that the policies and procedures "apply to the Carnegie Institution of Washington, and its Departments..." The index to the document further indicates that Departments may amend and supplement these procedures, subject to a review by the Director, Administration and Finance. Departments were neither expected, nor required, to supplement these policies and procedures. However, it was recognized that some departments might wish to issue further guidance, including various desk procedures, and this was permitted.*

*The Institution's policies and procedures specifically incorporate all applicable OMB circulars and requirements. At various times over the last three years, in response to audit and internal assessments, Carnegie has modified its policies and procedures to reflect new requirements, to strengthen performance by adopting best practices, and to assure compliance with all external documents. The policies and procedures also provide for some flexibility in operations at the*

*department level. However, pursuant to our institution-wide policies and procedures, any such adjustments are subject to review and approval by the Director of Administration and Finance.*

*Since March of 2006 CIW has used a “Standing Working Group,” comprised of business managers of the departments and the Director of Administration and Finance, the Manager of Human Resources and Insurance, the Financial Manager, and the Chief Information Officer, to perform a variety of financial and administrative functions. The SWG meets every two weeks and its activities include training related to the implementation of these policies and procedures. This training has covered a variety of topics, such as journal entry procedures, effort reporting, and federal grant requirements. Further, the charter of the SWG specifically provides that the group is to “help assure that institution-wide activities in these areas meet established standards and promote best practices.”*

*Carnegie has also strengthened its staffing capacity in the departments and at P Street since the period covered by most of the field work undertaken by Cotton & Company. We have new business managers for four of the six departments, a new Financial Manager at P Street, a new Deputy Financial Manager at P Street, a newly created position of a Senior Grants Accountant, and a new Financial Systems Accountant at P Street.*

*With the implementation of a sophisticated new financial system (NAV) in July 2008, we have concurrently adopted institution-wide review of grant transactions on a grant-by-grant basis. This is in addition to the activity at the department level.*

*We recognize, however, that the review and improvement of policies should be a continuing process. To respond further to this finding, Carnegie will:*

- Amend our policies and procedures to reflect the new processes that are embodied in the new accounting system and to describe the internal processes and individual roles for each of the six scientific departments and at P Street. We will require departments to identify, by position, the individuals performing the various roles, as well as any changes in responsibilities. This list will be kept centrally. These changes to the policies and procedures will be accomplished by October 1, 2009.*

*Include this area in the monitoring plan described under Finding No. 1, to be developed by August 1, 2009.*

## **Cotton & Company’s Response**

The Standing Working Group, the changes in staffing and the financial accounting system, and CIW’s plan to amend their policies and procedures, and monitor the implementation and effectiveness of their new policies and procedures, as described in CIW’s comments, if

implemented, are responsive to our recommendation. We do, however, recommend that as part of the audit resolution process that NSF confirm that all the activity described as being completed by CIW in its response and the revised policies and procedures that CIW plans to accomplish by October 1, 2009, have been adequately implemented before the recommendation is closed.

### **Finding No. 3: Grant Monitoring Practices Inadequate at Four Departments**

Four of CIW's seven departments did not effectively monitor their federal grant administrative activities. P Street did not have a business manager to monitor financial and administrative matters generated from PI federal grant activity. Directors at DTM, GEO, and EMB did not regularly and routinely review business office activity related to the federal grant administration process. OCIW, PBIO, and DGE effectively monitored the federal grant administration processes of their respective department business office.

OMB Circular A-110, Subpart C, Post-Award Requirements, Paragraph 21, requires effective control over and accountability for all funds, property, and other assets. CIW's Board of Trustees, through its Review Committee on Administration Report issued in 2006, indicated that business managers should receive day-to-day direction and oversight from CIW department directors. Such direction and oversight should include reviewing monthly credit card statements, meeting routinely with the business manager to discuss budget projections and overall federal grant activity, and performing reviews on a regular basis.

According to the Committee of Sponsoring Organizations of the Treadway Commission and best business practices, monitoring is a process to assess the quality of internal control performance over time. It involves assessing the design and operation of internal controls on a timely basis and taking necessary corrective actions. The purpose of monitoring is to ensure that controls continue to operate effectively. Given the decentralized structure at CIW, monitoring is all the more vital to ensure that CIW business offices and employees are complying with NSF and federal grant requirements.

DTM, GEO, EMB, and P Street did not monitor grant administration processes at their departments. Failure to conduct routine and thorough monitoring increases risks to financial and administrative management of grants. We noted areas of particular concern at two departments, [REDACTED].

The GEO director stated that he did not monitor the grant administration process or review NSF grants unless he was the PI for the grant, but delegated grant monitoring to and relied on the business office to keep grant administration affairs in order.

Without either a business office manager or department manager overseeing PI grant expenses at [REDACTED], one PI embezzled more than \$200,000 from federal award funds between 1994 and 1999. The Co-PI's scheme included paying [REDACTED] spouse over \$83,000 in salary for false time-and-effort reports that he forged; converting property purchased with award funds to his personal use; and fabricating invoices and receipts for purchases to make them appear award-related when, in fact, they were items purchased for his family and home. Although these instances of

embezzlement occurred before our review period, inadequate grant monitoring continues to create a risk for NSF funds.

The lack of independent departmental monitoring of the federal grant administration process increases the risk that irregularities or embezzlements that affect federal grant funds could occur.

### **Recommendation No. 3**

We recommend that NSF's Director of the Division of Grants and Agreements direct CIW's Board of Trustees to:

- Develop and implement a policy requiring all CIW department directors to monitor the financial and administrative federal grant processes at their respective departments.
- Hire or delegate a business manager at P Street to approve and administer federal grant financial and administrative affairs of the P Street PIs.

### **Management's Comments**

In its response to the draft audit report (Appendix C), CIW stated that:

*The work underlying the review was undertaken in 2007 and we have long since acted on the matters covered by these recommendations already.*

*Carnegie's current practice is to distribute month-end financial reports directly to PIs. The reports include both summary and detailed information, thereby permitting PIs to review all transactions to make sure they are correctly charged to grants. We have recently automated this process through a new reporting tool available in the new accounting system. Our performance measure is to have business managers distribute monthly reports within 20 business days of the close of the month. Performance is monitored on an institution wide basis by the Director, Administration and Finance, and the SWG. The responsibilities of the PI are described at pp. 3-4 of the Grants and Awards policies and procedures. Business managers, working with PIs, are responsible for resolving any discrepancies. We believe this internal control is highly valuable and should continue.*

*With respect to Department Directors, our current policy provides, "The Department's Director is responsible for implementing an overall grants program at the Department level that meets applicable requirements and helps to fulfill the scientific mission of the Department."*

*Regarding P Street, in the past the Accounting Office provided the same level of review for the expenditures of PIs at P Street as was performed for other departments. As a result of an on-site conversation with the Cotton & Company auditor during the fieldwork about the need for further review of expenses by PIs*

*located at P St., we established a policy of having the Director of Administration and Finance review and approve all such expenses. This change occurred toward the end of the period of the audit (2007).*

*Nonetheless, to respond further to the finding, Carnegie will:*

- *Mandate that department directors receive and review monthly reports on grant activities, with such report to include, at a minimum, the grant title, agency, start and end dates, PI, current period spending, grant to date spending, and funds remaining. In this report, the Business Manager will call attention to any matters requiring the Department Director's attention. This institution-wide process will be put into practice no later than August 1, 2009. This change will serve to make more concrete the responsibility that the Department Directors already hold, subject to supervision and review by the P St. business office.*
- *Delegate formal responsibility to the Director of Administration and Finance to serve as the Business Manager for P Street PIs, effective July 1, 2009 – a role that the Director has effectively been playing since the end of 2007. This individual will approve all expenses and effort charged by these PIs. In performing this role, the Director will rely on the P Street accounting staff to continue to perform its overall functions, such as the payment of bills and the recording of information in the general ledger that would otherwise might be performed by a departmental business office. In addition, P Street's Senior Grants Accountant will review all grant-related charges for P Street's PIs, thereby performing the grants review function at P Street typically performed in departmental business offices.*

### **Cotton & Company's Response**

The revised grant monitoring procedures and responsibilities of the Director of Administration and Finance, and the additional monitoring and oversight of the Department Directors as proposed, if implemented, as described in CIW's comments, are responsive to our recommendation. We do, however, recommend that NSF confirm as part of the audit resolution process that proposed and revised policies and procedures have been adequately implemented before the recommendation is closed.

### **Finding No. 4: Internal Controls over the Journal Entry Process Inadequate**

CIW did not have standardized, institution-wide, written journal entry procedures for departments to follow, even though all departments have the ability to post some types of journal entries directly into FundWare, CIW's accounting system. In addition, three of the seven CIW departments had no standard policies or procedures in place to properly process journal entries; the remaining four departments had journal entry procedures, but did not follow them. Therefore,



journal entries were processed without adequate controls such as proper approvals, proper explanations, or adequate documentation. Moreover, in our limited testing of journal entry controls, we found approximately \$25,718 inappropriately transferred to NSF awards.

An organization's grant financial reporting process includes the use of journal entries to record transactions such as purchases, labor costs incurred, materials and supplies. Journal entries should have adequate supporting documentation, explanation of purpose, and evidence of supervisory review and approval. Additionally, OMB Circular A-122, Attachment A, General Principles, Basic Considerations, requires use and retention of adequate cost documentation. It also states:

*Any cost allocable to a particular award or other cost objective under these principles may not be shifted to other Federal awards to overcome funding deficiencies, or to avoid restrictions imposed by law or by the terms of the award.*

The need for CIW to have a journal entry process was also identified in the March 27, 2007, KPMG management letter for the FY 2006 CIW financial statement audit. The auditors noted insufficient documentation and insufficient approvals for journal entries at CIW. The management letter recommended that each journal entry posted into the CIW accounting system be approved and supported by appropriate documentation. CIW concurred with this recommendation and agreed to take steps to implement its auditor's recommendations.

During our field work testing for this engagement, however, we determined that three of the seven CIW departments (PBIO, DGE, and DTM) had inadequate processes for making journal entries. The remaining four departments (P Street, GEO, EMB, and OCIW) had adequate journal entry processes, but did not follow them.

At the shared PBIO/DGE office, 29 of 43 journal entries we tested did not have one or more of the required elements of internal controls for journal entries. We identified eight inappropriate cost transfers made via journal entries that lacked adequate explanation and justification. These eight cost transfers shifted \$25,718 to NSF grants from other grants, because the grants to which those costs had been charged no longer had available funds.

Also at PBIO/DGE, we identified four cost transfers made when the PIs decided after-the-fact that expenses should be reallocated among their various grants. There were also 11 journal entries at PBIO/DGE with missing documentation to support transactions and/or inadequate explanations as to why the journal entries were made and 12 journal entries that did not have adequate approvals.

DTM did not use a standard journal entry form, but rather used an accounting system-generated printout as a means to document its journal entries. This print-out showed movement of costs among accounts, but did not include justification, support, and preparer signatures for journal entries. DTM was able to locate supporting documentations for all sampled journal entries and provide corresponding explanations except for one.

Finally, while four departments had adequate journal entry processes, they did not follow them. P Street, GEO, EMB, and OCIW had journal entry procedures requiring use of a standardized, pre-printed journal entry form that required information explaining the reason for the journal entry and authorization by two individuals before the journal entry was processed. The procedure also required an individual different than the person who initiated the journal entry to sign-off as approving the journal entry. Even with these prescribed journal entry procedures, we found that each of the four departments made journal entries that lacked supporting documentation, lacked explanations for the purpose of the journal entry, or were entered and approved by the same individual.

Without proper controls over journal entry processes, such as separating accounting journal entry and approval functions and requiring adequate documentation and explanations for the purpose of the journal entry, the risk of fraudulent activities increases significantly. Inadequate journal entry processes can allow an individual to alter accounting records to cover fraudulent activities.

#### **Recommendation No. 4**

We recommend that NSF's Director of the Division of Grants and Agreements direct CIW's Board of Trustees to implement policies and procedures over journal entries for all CIW Departments that require:

- Segregation of duties associated with authorizing, preparing, entering, and approving journal entries.
- Explanations for the purpose of the journal entry.
- Maintenance of all supporting documentation for the journal entry.
- Monitoring to ensure compliance.

#### **Management's Comments**

In its response to the draft audit report (Appendix C), CIW stated that:

*We agree that journal entry processes were insufficient during the timeframe covered by the audit. We have taken several steps in the intervening period since the audit was undertaken to strengthen these controls, and believe that much progress has been made.*

*Actions already taken include: a) the use of a new standard journal entry form at the Department of Terrestrial Magnetism, beginning with the use of the new accounting system (NAV) in July of 2008; b) the training of all business office staff in the requirements for journal entries, including the need for explanations; c) revised processes at the Observatories, where entries are prepared by the accounting analyst after approval from PI/Cost Center manager and then reviewed by the Business Manager prior to posting; d) revised procedures*

*affecting Plant Biology and Global Ecology; and e) P Street review of all journal entries related to departments that must be posted by P Street.*

*To further respond to this finding, Carnegie will:*

- *Amend its policies and procedures by October 1, 2009, to specify the individual departmental practices, by individual position, so as to assure greater segregation of duties over journal entries, adequate explanations, and documentation.*

*Include this area in the monitoring plan described under Finding No. 1, to be developed by August 1, 2009.*

### **Cotton & Company's Response**

The revised and proposed revisions to the policies and procedures related to journal entries and the plan to monitor them, if implemented, as described in CIW's comments, are responsive to our recommendation.

We do, however, recommend that NSF confirms as part of the audit resolution process that all activity described as being completed by CIW in its response and revised policies and procedures that CIW plans to accomplish by October 1, 2009, have been adequately implemented before the recommendation is closed.

### **Finding No. 5: Segregation of Duties and Controls over the Disbursement Process Inadequate**

Six of the seven CIW Departments had inadequate segregation of duties or inadequate controls over the disbursement process. Duties and responsibilities were not adequately separated, directors did not maintain signatory authority over department disbursements, and controls over blank-check stock were not consistently maintained. Only OCIW adequately segregated its staff duties for authorizing and making disbursements. OCIW improved its disbursement controls after a part-time OCIW accounting assistant was able to forge checks to fictitious vendors from 2001 to 2004, resulting in \$132,222 of embezzled funds.

KPMG, CIW's external auditors, identified the lack of segregation of duties over disbursements at DTM, PBIO, and DGE in its FY 2006 financial statement audit management letter. This management letter recommended that responsibilities be separated to improve controls over disbursements.

OMB Circular A-110, Subpart C, Post-Award Requirements, Paragraph 21, requires effective control over and accountability for all funds, property, and other assets. Best business practices also recommend segregation of duties and authorization controls for the disbursement process. Segregation of duties, whereby no single individual has complete control over a financial transaction, is essential to effective internal control. By assigning separate individuals to authorize transactions, process transactions, monitor those activities, maintain related accounting

records, and handle the related assets, the risk of error or opportunity to misuse or misappropriate assets is reduced.

All departments except OCIW had inadequate segregation of duties and controls over disbursements. Failure to provide adequate internal controls increases risks to financial and administrative management of grants. We noted areas of particular concern at two departments.

The DTM fiscal assistant could enter and post invoices, print checks, and access the blank-check stock. Similarly, the fiscal assistant's supervisor had control over these same processes. In response to the KPMG FY 2006 management letter, DTM assigned responsibility for mailing checks to an administrative assistant. It did not, however, use either a control log to monitor issuance of checks or restrict access to blank-check stock. Because a single individual had complete control over a financial transaction, and because of inadequate authorization oversight, internal controls over DTM's disbursement process are inadequate.

EMB's assistant to the business manager had control of EMB's blank-check stock as well as performed accounting duties, such as processing invoices and posting them to the accounting system, thus creating inadequate segregation of duties. The business manager corrected this condition after we brought it to [REDACTED] attention.

Inadequate segregation of duties and authorization controls over the disbursement process occurred, because CIW had not established policies and procedures requiring segregation of duties or authorization controls over disbursements. When one individual has access to all aspects of the disbursement process, it increases the risks of irregularities and fraud.

### **Recommendation No. 5**

We recommend that NSF's Director of the Division of Grants and Agreements direct CIW's Board of Trustees to develop and implement institution-wide policies and procedures that require all CIW departments to:

- Segregate disbursement functions adequately.
- Require appropriate levels of approval and certification of payments.

### **Management's Comments**

In its response to the draft audit report (Appendix C), CIW stated that:

*We have taken actions that serve largely to resolve these findings. We will take further steps to strengthen policies and procedures to segregate disbursement functions and require appropriate levels of approval.*

*During the period of, and following, the review we have resolved the weaknesses specifically identified in the report. The Department of Terrestrial Magnetism has implemented a control log to monitor check issuance. With the implementation of the new accounting system on July 1, 2008, blank check stock is no longer maintained in the various departments, except for a small reserve for*

*manual checks that may be required. The business manager at Embryology revised the process for accessing check stock at the time of the Cotton & Company fieldwork.*

*At the Department of Plant Biology, the Business Manager has instituted strict segregation of duties. Although blank check stock is no longer needed, strict controls are maintained for the residual stock in the event that a manual check is needed. The Accounts Payable Specialist and Business Manager perform certain segregated duties.*

*We also note the draft report does not describe any specific weakness regarding the Geophysical Laboratory. During the latter half of 2006 and 2007, that department fully revised its operating practices governing disbursements in order to achieve proper segregation of duties. Absent further information, we believe these procedures to meet all standards and requirements.*

*Carnegie's policies and procedures establish certain required approvals for check requests. These policies and procedures also cover the verification of approval by the check signer(s).*

*Although we believe that the observations in the report are considerably out of date, we have decided to undertake some further steps. Carnegie will amend its policies and procedures by October 1, 2009, to specify the individual departmental practices, by individual position, that will help achieve greater segregation and appropriate levels of approval over the disbursement function. We will require all departments to develop and submit a list of staff and their responsibilities related to disbursement and other financial and accounting functions. The list will be maintained by the Director, Administration and Finance.*

## **Cotton & Company's Response**

The revised policies and procedures, increased segregation of disbursement functions, and the additional proposed policies and procedures, if implemented, as described in CIW's comments, are responsive to our recommendation. We do, however, recommend that NSF confirms as part of the audit resolution process that all activity described as being completed by CIW in its response and revised policies and procedures that CIW plans to accomplish by October 1, 2009, have been adequately implemented before the recommendation is closed.

## **Finding No. 6: Labor-Effort Reporting Procedures Not Followed**

Although CIW formulated and implemented institution-wide labor effort reporting procedures, six of the seven (all except OCIW) CIW departments did not adhere to them, as follows:

- GEO and DTM reported budgeted rather than actual labor costs on their NSF grants.

- P Street did not use employee timesheets to complete effort reports for hourly employees.
- PBIO and DGE did not always approve final modified labor effort reports.
- DTM and EMB did not require personnel to notify supervisors of leave taken as part of the effort-reporting process.

OMB Circular A-122, Cost Principles for Non-Profit Organizations, Attachment B, Paragraph 7, Compensation for Personal Services, subparagraph m, Support of Salaries and Wages, states that charges to federal awards for salaries and wages, whether treated as direct or indirect costs, must be based on documented payrolls approved by responsible official(s) of the organization and supported by personnel activity reports. The reports must reflect an after-the fact determination of the actual activity of each employee. Budget estimates do not qualify as support for charges to awards. The reports must be prepared at least monthly and must coincide with one or more pay periods.

CIW's established labor effort reporting policies and procedures support OMB requirements and state that reports reflecting distribution of labor activity of each CIW employee must be maintained for all staff members (professionals and nonprofessionals, full time and hourly) whose compensation is charged, in whole or in part, directly to federal awards. CIW employees working on federal awards are required to track the specific labor effort they expend on each federal award to which they are assigned.

CIW procedures require each employee or the employee's supervisor to report specific labor effort they expend on each federal award to a designated CIW departmental official (either the business manager or other fiscal official) who then enters that information monthly into a labor-effort reporting template (Excel spreadsheet). These individual labor-effort reports are reviewed and approved by the designated CIW official who prepares a summary labor-effort report spreadsheet that is then forwarded to P Street. P Street compiles these reports and uses results to claim labor costs on CIW's Federal Cash Transactions Reports submitted to NSF. CIW procedures specifically emphasize that budget estimates do not qualify for labor effort charges to federal awards.

Even with established institution-wide labor-effort reporting policies and procedures, PIs at GEO and DTM reported budget rather than actual labor effort on their monthly labor reports, contrary to CIW policy and OMB requirements. PIs at both departments informed us that they used budget allocations for their labor-effort reporting because they did not want to exceed the grant allocation for salaries and wages.

PIs at P Street did not use employee timesheets to complete effort reports for hourly employees, as required by CIW policies and procedures. PIs at PBIO/DGE did not always indicate their approval of final, modified labor-effort reports prepared by the business manager, also a CIW requirement. As a result, P Street used inaccurate or unapproved labor-effort reports to calculate charges to CIW's NSF grants.

Finally, DTM and EMB did not require personnel to notify supervisors of leave taken as part of the effort-reporting process. As a result, records did not exist to ensure that employees were not posting labor charges to federal grants when in leave status.

Reporting labor-effort charges or employee leave using a basis other than actual labor-effort reports prepared by an employee increases the risk that misstatements or improper labor costs will be charged to NSF and federal grants and increases the risks that embezzlements, such as the first instance of embezzlement at P Street, will recur.

### **Recommendation No. 6**

We recommend that NSF's Director of the Division of Grants and Agreements direct CIW's Board of Trustees to:

- Ensure that institution-wide labor-effort reporting procedures are adequately implemented and adhered to by all CIW departments, and that all CIW business managers are properly trained to monitor and enforce compliance.
- Develop and implement procedures that require all personnel to notify supervisors when leave is requested and taken and labor-effort reports to accurately reflect such leave.

### **Management's Comments**

In its response to the draft audit report (Appendix C), CIW stated that:

*We remain uncertain as to several of the particulars related to this finding, which seem to reflect some misunderstanding of our processes at the time of the review. Nonetheless, we have considerably strengthened our effort reporting process over the last year – that is, after the review was completed.*

*We believe there may have been a misunderstanding of our policies and procedures in verbal communications between PIs and the auditors. During the internal control review, the GEO Business Manager explained the entire effort reporting process with the Cotton & Company staff, and provided supporting documentation for all transactions that were selected by Cotton & Company review. There was no mention at that time of any budgeted costs during this process, and there was no mention of any concern by the auditors. We also questioned the PIs who were interviewed by Cotton and Company to attempt to further understand the basis for this finding. We believe that individuals were referring to institution-wide practices related to charges, not to the requirement to report actual time. While an individual is required to report the percentage of actual time spent, under our policies and procedures we do record charges less than that percentage for federal grants when the resulting charge would exceed the amount budgeted. We cover the excess through the endowment. Our only possible explanation for this portion of the finding is that the auditor may have*

*misinterpreted a discussion about policies for charging grants to mean that individuals report budgeted effort.*

*Carnegie's implementation of its new accounting and financial system, effective July 1, 2008, has brought about changes in the process involved in the reporting and recording of effort, as well as the reporting and recording of leave. Among the changes are the recording of detailed payroll information, by employee, in the general ledger, and additional controls to help minimize errors in reporting. Further, we have reviewed effort reporting requirements in the meetings of the Standing Working Group.*

*Regarding leave, our policy does not require advance approval, documented in writing, of annual and sick leave. Some departments, including the Department of Embryology, have implemented such procedures; these occur primarily because some labs with vulnerable animals require certain minimum staffing levels at all times. However, our policy does require reporting of all leave taken. Specifically, under Section IV of the Payroll Policies and Procedures, employees must report days of leave taken along with effort percentages for time worked each month. When this information is entered into the standard effort report form, the leave percentages are automatically calculated and deducted from wages available for distribution among the various cost centers.*

*To further respond to this finding, based on the observations in the report as well as best practices, Carnegie will conduct additional training in this area to ensure that our policies are understood and are being followed. Specifically, over the next six months we will provide information and instructions to all individuals throughout the organization who are involved in effort reporting, including possibly conducting on-line training for all employees. We will also revise the certification required of business managers through our new accounting system to reemphasize the federal requirements in this area. Finally, we will require that any leave recorded within the effort reporting process to the business office be reviewed by the responsible PI or supervisor.*

### **Cotton & Company's Response**

The plan to conduct training related to labor-effort reporting and the planned revisions to the certification and leave reporting procedures, if implemented, as described in CIW's comments, are responsive to our recommendation. We do, however, recommend that NSF confirm as part of the audit resolution process that all activity described as being completed by CIW in its response and revised policies and procedures have been adequately implemented before the recommendation is closed.

### **Finding No. 7: CIW Purchase-Order Procurement Procedures Inadequate**

CIW's purchase-order procedures are inadequate. Its document titled *CIW Policies and Procedures* states that purchase orders should be used for "high dollar" orders, but does not define what constitutes high dollar. Instead, the procedure is left open for the departments to



interpret and determine when to use purchase orders. Two of the seven CIW departments (P Street and DTM) did not use purchase orders as part of their procurement process. OCIW is the only CIW department that established written procedures requiring mandatory use of purchase orders for its acquisitions, including travel associated with federal grant activity.

OMB Circular A-110, Subpart C, Post-Award Requirements, Paragraph 21, requires effective control over and accountability for all funds, property, and other assets. As such, standard best business practices advocate using purchase orders as a means to ensure that purchases are properly approved and adequately funded. Purchase orders also provide a means to control purchases and obligate funds. Expenses are obligated and tracked in the accounting system through the use of purchase orders, and a purchase order is compared to its related invoice to verify the accuracy of goods and services received at the departments.

A former ██████████ embezzled more than \$200,000 from federal award funds between 1994 and 1999. Had purchase orders been used properly, this embezzlement could have been detected earlier or avoided.

The DTM fiscal officer informed us that DTM does not enter purchase orders into its accounting system, because of the rapid turnaround time from placing an order to disbursing funds. Additionally, DTM PIs view their authority to travel to include the authority to purchase supplies. PIs frequently travel to remote field sites to perform official federal grant duties and often need supplies to complete excavation projects. In some instances, they make supply purchases of several hundreds of dollars without using purchase orders.

Institution-wide purchase order procedures in the procurement process are inadequate. Without internal controls that purchase orders provide, CIW has no level of assurance that departmental purchases are properly budgeted, authorized, and approved, as required by OMB guidance. Failure to use purchase orders also increases the risk that funds will be used for unallowable or unallocable expenses and that sufficient funds will not be available to pay for actual incurred grant costs.

### **Recommendation No. 7**

We recommend that NSF's Director of the Division of Grants and Agreements direct CIW's Board of Trustees to:

- Establish institution-wide written procedures requiring use of purchase orders for the authorization and budgeting of all CIW department purchases to include dollar thresholds and specific guidelines for purchase-order use.
- Require departments to use purchase orders for obligating and expending funds within CIW's accounting system.
- Develop and implement a monitoring policy and procedures to ensure that all CIW departments are using purchase-order procedures consistently and correctly.

## Management's Comments

In its response to the draft audit report (Appendix C), CIW stated that:

*The review was undertaken in July through October 2007 and does not reflect the changes that have been implemented in the period after the review. In particular, Carnegie's purchase order processes have been revised with the implementation of the new accounting and financial management system (NAV), effective July 1, 2008. We concur with the need to update our policies and procedures to reflect these new processes, as well as to specify thresholds for purchase-order use. However, we do not agree that purchase orders should be required for all goods and services. For example, utilities, direct (ACH) payments, insurance premiums, legal bills, postage, fees from investment managers, lodging and meals, and purchases in remote locations by scientific staff may best be handled and managed through means other than purchase orders – albeit through processes that provide adequate and appropriate controls. We also believe that departments should have some flexibility in determining the particular features to be used within our accounting system. For example, the Observatories has need to use a procurement granule available in NAV, but other departments have no need to use this particular function. Carnegie has not yet implemented the use of this granule at the Observatories, but plans to do so.*

*To address this finding, we will:*

- *Issue revised policies and procedures by January 1, 2010.*
- *Revise processes in those departments currently not using the system-based purchase order feature in NAV so that by January 1, 2010, all departments will be using this feature.*
- *Establish a monitoring process for purchase orders as part of the overall monitoring plan to be implemented under Finding No. 1.*

## Cotton & Company's Response

The proposed revisions to the policies and procedures related to purchase orders and the plan to monitor them, if implemented, as described in CIW's comments, are responsive to our recommendation. We do, however, recommend that NSF confirms as part of the audit resolution process that all activity described as being completed by CIW in its response and revised policies and procedures have been adequately implemented before the recommendation is closed.

## Finding No. 8: Other Matters

Other internal control weaknesses at four of the CIW departments came to our attention during this engagement that, if not corrected, could place NSF funds at risk of errors and irregularities without being readily detected.

## **Segregation of Duties Lacking and Procedures for Cash Receipts Not Followed (OCIW)**

OCIW did not properly segregate duties related to cash receipts, did not make deposits in accordance with its own written procedures, and maintained a separate bank account for incoming checks, rather than using the CIW designated depository.

OMB Circular A-110, Subpart C, Post-Award Requirements, Paragraph 21, requires effective control over and accountability for all funds, property, and other assets. OCIW's own written procedures over depositing processes require assurance that duties and responsibilities associated with the deposit preparation process be appropriately separated. OCIW procedures also require deposits to be made whenever \$1,000 is accumulated or after 30 days from receipt.

OCIW's cash receipt processes lack adequate separation of duties. The OCIW business manager opens the mail, enters amounts into a journal, and prepares and makes deposits, thereby establishing total control over the intake process and violating the segregation-of-duties concept. These processes also did not comply with written OCIW procedures.

Our review of OCIW bank deposits identified a deposit made on February 16, 2007, consisting of 15 checks from November 27, 2006, to February 14, 2007. This deposit was untimely and did not comply with OCIW's written procedures.

OCIW also maintains a separate account in Pasadena, California, since it experienced lost checks en route to P Street. OCIW did not, however, initiate procedures to send copies of deposit slips to P Street. Thus P Street cannot oversee funds received and deposited by OCIW.

When segregation of duties is lacking or there is a breakdown in implementation of controls over cash receipts, errors can occur, and an individual has the potential to manipulate the cash intake process for personal gain without being readily detected.

## **Inventory Control Inadequate (GEO and PBIO)**

GEO and PBIO inventory management controls were inadequate and could lead to misappropriated or improperly valued government-funded assets. At both GEO and PBIO, not all federal assets were properly tagged or identified.

OMB Circular A-110, Subpart C, Post-Award Requirements, Paragraph 21, requires effective control over and accountability for all funds, property, and other assets. Further, the October 2004 KPMG internal control report recommended establishing an annual inventory requirement for all CIW departments. CIW did not, however, address this recommendation in its Corrective Action Plan.

The failure to tag or identify government property could affect the accountability of these assets. An annual or periodic inventory requirement provides a level of assurance regarding the existence and proper value of government-funded assets.

## **Travel Policies Not Followed (DTM and OCIW)**

DTM and OCIW each did not comply with CIW or federal travel policies in one instance. While insignificant in amount, these situations indicate a weakness in controls over business practices.

OMB Circular A-122, Attachment B, Section 51, Travel costs, d. 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.

*CIW Policies and Procedures on Travel* also states that business offices are responsible for assuring that meal and lodging costs in excess of the federal per-diem allowance must not be charged directly or indirectly to federal grants in compliance with the OMB Circular A-122 standard of reasonable costs. Excess costs must be charged to accounts designated by the P Street Accounting Office and are eventually absorbed by CIW's endowment.

DTM charged an NSF grant for a PI's conference meal costs that exceeded the allowable per-diem rate. While insignificant in amount, this was a violation of CIW's travel policy.

OCIW did not obtain NSF approval for foreign travel in one instance, which violates OMB and CIW's requirements. In addition, the OCIW business manager informed us that actual lodging costs are approved without verifying them against federal limits, and thus, lodging costs that exceed the federal allowance may still be charged to federal grants, which violates both CIW and federal requirements.

## **Recommendation No. 8**

We recommend that NSF's Director of the Division of Grants and Agreements direct CIW's Board of Trustees to:

- Require OCIW to properly segregate duties related to cash receipts, make deposits in accordance with its own written procedures, and eliminate its separate bank account for incoming checks.
- Require GEO and PBIO to properly identify federal assets.
- Establish a procedure that ensures that all departments conduct annual asset inventories.
- Formulate and implement a monitoring process that will ensure that all departments comply with OMB and CIW travel regulations regarding meal and lodging costs.

## **Management's Comments**

In its response to the draft audit report (Appendix C), CIW stated that:

*We have implemented two of these recommendations, as follows:*

- *With respect to OCIW's handling of cash receipts, we closed the separate bank account on December 5, 2008. OCIW has revised its receipt procedures so that duties are properly segregated. Moreover, we have recently decided to use an on-line deposit system at P Street and at several departments, including the Observatories. The introduction of this new system will require a revision of our policies and procedures for handling such receipts. We will assure that these new procedures are finalized and implemented on a timetable that will coincide with the implementation of the new on-line deposit system, which is currently scheduled to occur in 2009.*
- *With respect to asset inventories at GEO and PBIO, we have put new procedures in place that will assure the identification of all assets.*

*To further respond to this recommendation, Carnegie will:*

- *Implement an annual, rather than the current biannual, inventory process for all departments, beginning with the fiscal year that begins July 1, 2009. Because federal regulations require that such inventories be conducted only every other year, we will assess the annual process after two years and determine whether a timetable consistent with federal regulations is preferable.*
- *Implement a monitoring process to help assure that all departments comply with applicable OMB regulations and CIW policies. Specifically, we will include travel within the monitoring process described in response to Finding No. 1.*

### **Cotton & Company's Response**

Procedures already implemented and those proposed in CIW's comments related to cash receipts, inventories, and travel and the plan to monitor them are responsive to our recommendation if properly implemented. We do, however, recommend that NSF confirms as part of the audit resolution process that that all activity described as being completed by CIW in its response and revised policies and procedures have been adequately implemented before the recommendation is closed.

**APPENDIX B**  
**AGREED-UPON PROCEDURES**

**APPENDIX B**  
**AGREED-UPON PROCEDURES**

**Preliminary Work with NSF**

- Gain an understanding of the three known instances of embezzlement at Carnegie and determine the circumstances which allowed these embezzlements to occur. Review OIG audit and investigation files.
- Revise work plan steps accordingly to include the high risk areas identified that may have led to these embezzlements.
- Obtain and review the A-133 reports for the last 3 fiscal years.
- Obtain from NSF information on its review and negotiation of Carnegie's indirect costs rates for the last 3 fiscal years.
- Obtain from NSF a list of all NSF grants active in the last 4 years that identifies which Carnegie department was responsible for each grant.
- Review the Internal Control Review Report (October 8, 2004) performed by KPMG.
- Review Carnegie's Action Plan in Response to KPMG's internal control report. Document an analysis and assessment of whether it adequately addresses findings from the internal control review report – from preliminary perspective and to determine impact of Action Plan on type and extent of testing of internal controls.
- Review KPMG's consulting report (August 28, 2006) and supporting workpapers (received from OIG subpoena) and document what was and wasn't done.

**KPMG Records and Meetings**

- Meet with KPMG representatives and discuss their follow up to the internal control report. Determine how the A-133 reports could contain no findings in light of the internal control weaknesses known to them.
- Discuss the scope and results of any other professional or consulting services performed for Carnegie during last 3 fiscal years.
- Review KPMG's work papers for the A-133 audits and any other Carnegie tasks performed for last 3 fiscal years.
- Review/copy cycle memos related to internal controls or accountability of federal funds, or other high risk areas; workpapers related to reviews of the corrective action plan; and any other relevant documentation.

- Document whether the internal control corrective action plan proposed by Carnegie was implemented and if not what was not implemented and why. Document all changes to Carnegie's policies and procedures during the last 3 years.

### **Work Performed at Carnegie**

- Obtain from Carnegie a list of all NSF grants active in the last 4 years that identifies which Carnegie department was responsible for each grant.
- Determine if the list provided by NSF agrees with Carnegie's. Follow up on all differences.
- Meet with Carnegie representatives and discuss the implementation of the corrective action plan and any other policy or organizational changes made since October 2004, especially as relates to the accountability of federal funds. Inquire of Carnegie regarding if institution can provide documentation on the first two instances of embezzlement and review same.
- Inquire of Carnegie representatives if there have been any other audits, attestation or management reviews conducted which involve federal grant funds or any types of management analysis, consulting engagements, reports, etc. in response to embezzlements and internal control deficiencies (beyond the Corrective Action plan).
- If yes, obtain copies of reports, management letters, etc., and obtain Carnegie's responses to reports.
- Discuss what the Headquarters Finance department does to oversee accountability for each Carnegie Department.
- Request contact information for all relevant employees in each department.
- Obtain and review copies of organization charts and policies and procedures both current and prior, for each Carnegie department with responsibility of accountability of federal funds, and in particular, NSF funds.
- Conduct analysis of written policies and procedures and organizational charts and note discrepancies and consistencies with KPMG's cycle memos and audit workpapers.
- Assess the adequacy of the internal control design to prevent fraud (e.g., would the procedures, if followed, prevent embezzlements)
- From the lists of NSF grants select a sample of at least one NSF award from each department.
- For each sampled grant request a breakdown of costs claimed for the last 3 years by budget category that reconciles to the December 31, 2006 FCTR and Cost Share Certifications submitted to NSF.



- Inquire about any significant variances between budget and actual costs. Determine whether policies and procedures exist to compare budget to actual expenses and if so were they followed. Follow up on any unusual instances.
- Obtain an electronic download, at the detail transaction level, of expenditures for each sampled grant. Reconcile the expenditure reports to the cumulative amounts claimed for the last 3 years on the FCTRs.
- Select a sample of transactions from major cost categories for each grant.
- Scan/sort the expenditure reports to identify all expenditures that originated by journal entry. Include adjusting journal entries, reversing entries, and any other entries that are outside system generated data flow (e.g., any entries that are outside subsidiary ledger system generated transactions – manually made entries). Select a sample for testing and follow up.
- Scan/sort the expenditure reports to identify any large or unusual transactions. Select a sample for testing and follow up.
- For the sampled transactions obtain and review all supporting documentation. Internal control attributes to be tested will be defined based on our summary of Carnegie’s policies and procedures.
- Because of the possibility of ghost employees and/or vendors trace sampled payroll and vendor charges to personnel and vendor files. Confirm that files exist and that they were established in accordance with Carnegie’s established policies and procedures.
- Determine whether Carnegie’s internal controls, policies and procedures were followed. Document all exceptions and discuss exceptions with Carnegie representatives.
- Conduct interviews with Carnegie employees in each department to determine their understanding of their responsibilities with regard to federal and NSF funds
- For each sampled grant also test internal controls related to draw downs, expenditure reporting, and other NSF compliance requirements.
- Discuss with the NSF OIG findings/issues noted and whether testing should be expanded in any area.

## **Summarization and Reporting**

Prepare a summary for the NSF OIG that discusses the following:

- The results of the discussions with KPMG and the review of their workpapers.
- Whether Carnegie's internal control corrective action plan has been implemented and is operating effectively. If not, a description of what has not been implemented/and or is not operational and why.
- Whether Carnegie's corrective action plan is adequate to properly accumulate, track and monitor NSF grant funds. If not, include recommendations to address areas of weaknesses.
- Whether or not procedures performed by KPMG in the consulting engagement related to the 2006 embezzlement was adequate. If not, a description of what was not performed and why.
- An assessment of the risk that NSF funds were diverted to private use by Carnegie employees.
- A discussion of any other matters concerning instances of noncompliance with laws, regulations, and the provisions of NSF grant terms and conditions which have come to the IPA's attention during fieldwork.
- A recommendation whether or not to perform audits of specific NSF awards and why.
- Based on discussions with Carnegie document whether the internal control corrective action plan proposed by Carnegie was implemented and if not what was not implemented and why.

Prepare a final report based on discussions with NSF OIG representatives.

**APPENDIX C**  
**RESPONSE FROM THE CARNEGIE INSTITUTION OF WASHINGTON**

June 1, 2009

SCIENTIFIC DEPARTMENTS

**Embryology**  
BALTIMORE, MARYLAND

**Geophysical Laboratory**  
WASHINGTON, DC

**Global Ecology**  
STANFORD, CALIFORNIA

**The Observatories**  
PASADENA CALIFORNIA AND  
LAS CAMPANAS, CHILE

**Plant Biology**  
STANFORD, CALIFORNIA

**Terrestrial Magnetism**  
WASHINGTON, DC

**Carnegie Academy for  
Science Education**  
WASHINGTON, DC

Carnegie Institution  
of Washington

1530 P Street NW  
Washington, DC 20005

202 387 6400 Phone  
202 387 8092 Fax

[REDACTED]  
Cotton & Company LLP  
635 Slaters Lane, 4th Floor  
Alexandria, Virginia 22314

Re: Carnegie Institution of Washington (CIW) Comments Concerning Draft  
Report of Internal Control Review

Dear [REDACTED]

The Carnegie Institution of Washington (CIW) respectfully submits comments in response to your report concerning the Internal Control Review of the Institution. We take the subject matter of the review very seriously and we request your careful consideration of these comments.

The field work that underlies your report was largely completed between July and October 2007, sampling transactions that occurred between January 2004 and March 2007. Before the review undertaken by Cotton & Company, Carnegie had engaged KPMG to conduct a review of our internal controls and then we launched an Administrative Review, involving trustees and outside experts, to review and advise on our business practices. As a result, we have taken numerous and aggressive steps to strengthen internal controls related to the Institution's finance and administrative operations over the last three years. Many of the improvements were put in place after the sampled transactions occurred or after the field work was complete. In some circumstances, policies had been modified at the time of review, but were not yet fully implemented. Moreover, since the conduct of your fieldwork, CIW has made further improvements to its policies, procedures, and financial software, including installing a new accounting and administrative system. As a result, we believe the report provides an out-of-date view of the current state of our internal controls.

Some of the changes include the following:

- **Significant staffing changes.** Carnegie has strengthened its staffing in the departments and at P Street. We have new business managers for four of the six departments, a new Financial Manager at P Street, a new Financial Systems Accountant at P Street, and two newly created positions at P Street -- Deputy Financial Manager and a Senior Grants Accountant.
- **Policies and Procedures.** New institution-wide policies and procedures were issued in July of 2006. Many of these policies are directly focused on internal controls.

- **New Financial System.** During the period of the review we began work on identifying and implementing a new accounting and administrative system for the organization that has served to augment our controls through, for example, allocation of rights and required signoffs. We began using this system in July of 2008.
- **Standing Working Group.** Since March of 2006 CIW has used a "Standing Working Group," comprised of business managers of the departments and the Director of Administration and Finance, the Manager of Human Resources and Insurance, the Financial Manager, and the Chief Information Officer, to perform a variety of financial and administrative functions. This group meets every two weeks by way of a regularly scheduled teleconference, with minutes summarizing the actions to be undertaken and understandings that were reached that are prepared after every call. This has greatly enhanced coordination of the business operations at headquarters and the departments.

Various other changes are described in response to the specific findings and recommendations, discussed below.

We also note that the report does not discuss all the details of the underlying embezzlements, one of which occurred in the 1990s, and excludes mention of the aggressive role that Carnegie played in the response to these events. As a result, a third party reviewing this report might erroneously conclude that it represents the first discovery and external reporting of these incidents. Such a conclusion would be incorrect. Carnegie has previously informed all relevant parties, including the NSF's Office of the Inspector General, of these separate incidents, and we have long ago repaid all amounts owed the federal government. Regarding the most recent incident, the theft at the ██████████ that was discovered in early 2006, Carnegie: discovered the fraud by reviewing certain financial records; fired the employees involved; informed the NSF's OIG and other interested parties of the thefts; conducted an independent forensic audit, designed in part with the assistance of the NSF OIG staff, to determine whether federal funds were involved (the audit concluded that federal funds were not involved); referred the matter to the Department of Justice and supported its successful prosecution efforts; and made a series of changes to the operations of that department, including hiring a new business office staff and, as noted above, greatly strengthening various internal control procedures. We believe it is unfortunate that your report excludes mention of these aspects of Carnegie's performance in response to these matters.

This letter describes the actions we have taken that relate to your findings, many of which were undertaken in the extensive period after the review was undertaken but before receiving your report. We have organized our response to parallel the findings and recommendations in the draft report. Although we believe that most of the recommendations have been substantially addressed, we have determined that we should take further steps. Our comments describe the additional steps we plan to pursue for each of the findings and recommendations.

### Finding and Recommendation No. 1

The draft report finds that the corrective action plan related to the recommendations in the 2004 KPMG internal control review was not fully implemented and recommends:

“We recommend that the NSF’s Director of the Division of Grants and Agreements direct CIW’s Board of Trustees to fully implement recommendations in the KPMG October 2004 report and provide ongoing monitoring to verify the corrective actions are taken.”

#### *Carnegie’s Comments:*

We have implemented all the major recommendations in the KPMG report. Nonetheless, we agree that there are some further actions that should be undertaken.

In October 2004, Carnegie engaged KPMG to review its internal controls. KPMG made 17 separate recommendations, some with several components, and ranked them as high, medium, or low priority in recognition of the fact that not all items could be addressed simultaneously. Carnegie’s action plan to address this report grouped the recommendations into five activity areas. The goal of the action plan was to remedy the findings of control deficiencies, whether through implementation of the KPMG recommendation or through alternative steps that Carnegie determined would achieve the intended goal. The action plan involved several steps that were implemented relatively quickly, such as the appointment of the Chief Information Officer, and other steps that required a longer period, such as the replacing the computerized accounting system with a new financial system.

One particular issue highlighted in the draft report is the KPMG recommendation related to organizational structure, as follows:

“Revise the organizational structure to either include a Chief Financial Officer position in addition to the Director of Administration and Finance or to enhance the responsibilities and authority of the Director of Administration and Finance.”

In 2006, Carnegie assessed administrative operations, including organizational structure and reporting responsibilities, through an Administration Review. The review process was directed by the President and involved several members of the Board of Trustees and various outside experts. Prior to and following that review, the President enhanced the authority of the Director of Administration and Finance. In a memorandum dated March 30, 2007, the President informed all affected parties within the Institution that effective immediately:

“.....Business managers will respond to guidance from the Director of Administration and Finance concerning institutionwide matters. In assessing the performance of business managers, department directors will receive input from the Director of Administration and Finance concerning performance on institutionwide matters....”

Prior to that memo, the President had earlier directed that all hires in business offices in departments must be approved by the Director of Administration and Finance, and that all non-

scientific hires in the Institution must undergo a background check, the results of which were to be reviewed at headquarters. The President, in the March 30, 2007 memorandum, further advised that he would periodically review the revised reporting structure to assure its effectiveness. In short, the President did take steps to enhance the responsibilities and the authority of the Director of Administration and Finance, exactly as KPMG had recommended.

As a general matter, the report suggests that Carnegie's departments are stand-alone entities that manage all aspects of their own financial operations. This is not the case. To illustrate, billings for most grants and the recording of most revenues for all departments are done at P Street. P Street reviews quarterly the reconciliation of key balance sheet accounts prepared by departments, and makes any required adjustments in coordination with departmental staff. Adjustments to salaries are made only after review and approval by the President. Salaries and effort throughout the Institution are recorded in the general ledger by staff at P Street, following a review to help assure checks and balances. Any corrections to the posting of effort are done at P Street. The P Street office prepares a single set of financial statements for the Institution. Payroll and many human resource functions, such as the management of retirement contributions and health benefits, are centralized. In short, CIW does not operate in a manner that considers all departments to be managing all aspects of their own financial operations in a decentralized fashion. Rather, we consider the combination of headquarters staff and departmental business offices to be an integrated set of activities that manage the financial operations of the Institution and its departments. Of course, the regular meetings of the Standing Working Group serve to reinforce the integrated nature of our business operations.

We conclude that the report fundamentally misstates the present relationship between the departments and headquarters, perhaps because the work underlying the report was undertaken so long ago (2007). Nonetheless, to respond further to this finding and recommendation, Carnegie will:

- Revise policies and procedures to: strengthen the safeguarding of assets; achieve greater standardization across departments; and document and fully ensure the segregation of duties. These revisions will be issued by October 1, 2009. Some of these steps relate to other findings below.
- Put in place a monitoring plan by August 1, 2009. A basic feature of this plan will include the use of an external organization to provide an internal audit function. We have already hired a firm for this purpose. The firm will review departments on a three-year schedule, with the result that at least two departments will be reviewed each year. In addition, as a separate activity, P Street will sample transactions across all departments in select areas each year; the monitoring plan will identify the specific areas to be reviewed by year. The transactions to be sampled will include travel, journal entries, purchase orders, cash receipts, and disbursements. All results of the external review and the internal sampling of transactions will be reported to the President and the Audit Committee of the Board of Trustees.

## Finding and Recommendation No. 2

The draft report finds that federal grant financial and administrative policies and procedures are not adequately developed and implemented, and recommends:

“We recommend that NSF’s Director of the Division of Grants and Agreements direct CIW’s Board of Trustees to:

- Require CIW to fully develop and implement adequate financial and administrative policies and procedures for the entire organization.
- Periodically evaluate business practices at departments to ensure adequate implementation of CIW’s policies and procedures.”

### *Carnegie’s Comments:*

Because the work underlying the report was undertaken between July and October 2007, it could not reflect the many changes that were underway at the time of the review and that were implemented thereafter. We have revised the policies and procedures that you examined. Nonetheless, because we know that we can continue to improve our operations, we will continue to strengthen our financial and administrative policies for the organization and will systematically evaluate practices at departments to ensure implementation of these policies and procedures.

In July of 2006, in response to KPMG’s internal control review, Carnegie issued institutionwide policies and procedures, including financial and administrative policies. The document, available on our website, states that the policies and procedures “apply to the Carnegie Institution of Washington, and its Departments...” The index to the document further indicates that Departments may amend and supplement these procedures, subject to a review by the Director, Administration and Finance. Departments were neither expected, nor required, to supplement these policies and procedures. However, it was recognized that some departments might wish to issue further guidance, including various desk procedures, and this was permitted.

The Institution’s policies and procedures specifically incorporate all applicable OMB circulars and requirements. At various times over the last three years, in response to audit and internal assessments, Carnegie has modified its policies and procedures to reflect new requirements, to strengthen performance by adopting best practices, and to assure compliance with all external documents. The policies and procedures also provide for some flexibility in operations at the department level. However, pursuant to our institution-wide policies and procedures, any such adjustments are subject to review and approval by the Director of Administration and Finance.

Since March of 2006 CIW has used a “Standing Working Group,” comprised of business managers of the departments and the Director of Administration and Finance, the Manager of Human Resources and Insurance, the Financial Manager, and the Chief Information Officer, to



perform a variety of financial and administrative functions. The SWG meets every two weeks and its activities include training related to the implementation of these policies and procedures. This training has covered a variety of topics, such as journal entry procedures, effort reporting, and federal grant requirements. Further, the charter of the SWG specifically provides that the group is to “help assure that institution-wide activities in these areas meet established standards and promote best practices.”

Carnegie has also strengthened its staffing capacity in the departments and at P Street since the period covered by most of the field work undertaken by Cotton & Company. We have new business managers for four of the six departments, a new Financial Manager at P Street, a new Deputy Financial Manager at P Street, a newly created position of a Senior Grants Accountant, and a new Financial Systems Accountant at P Street.

With the implementation of a sophisticated new financial system (NAV) in July 2008, we have concurrently adopted institution-wide review of grant transactions on a grant-by-grant basis. This is in addition to the activity at the department level.

We recognize, however, that the review and improvement of policies should be a continuing process. To respond further to this finding, Carnegie will:

- Amend our policies and procedures to reflect the new processes that are embodied in the new accounting system and to describe the internal processes and individual roles for each of the six scientific departments and at P Street. We will require departments to identify, by position, the individuals performing the various roles, as well as any changes in responsibilities. This list will be kept centrally. These changes to the policies and procedures will be accomplished by October 1, 2009.
- Include this area in the monitoring plan described under Finding No. 1, to be developed by August 1, 2009.

### Finding and Recommendation No. 3

The draft report finds that grant monitoring practices are inadequate at four departments and recommends:

“We recommend that NSF’s Director of the Division of Grants and Agreements direct CIW’s Board of Trustees to:

- Develop and implement a policy requiring all CIW department directors to monitor the financial and administrative grant processes at their respective departments; and
- Hire or delegate an individual at P Street to serve as a business manager to approve and administer federal grant financial and administrative affairs of the P Street PIs.”

### *Carnegie's Comments*

The work underlying the review was undertaken in 2007 and we have long since acted on the matters covered by these recommendations already.

Carnegie's current practice is to distribute month-end financial reports directly to PIs. The reports include both summary and detailed information, thereby permitting PIs to review all transactions to make sure they are correctly charged to grants. We have recently automated this process through a new reporting tool available in the new accounting system. Our performance measure is to have business managers distribute monthly reports within 20 business days of the close of the month. Performance is monitored on an institutionwide basis by the Director, Administration and Finance, and the SWG. The responsibilities of the PI are described at pp. 3-4 of the Grants and Awards policies and procedures. Business managers, working with PIs, are responsible for resolving any discrepancies. We believe this internal control is highly valuable and should continue.

With respect to Department Directors, our current policy provides, "The Department's Director is responsible for implementing an overall grants program at the Department level that meets applicable requirements and helps to fulfill the scientific mission of the Department."

Regarding P Street, in the past the Accounting Office provided the same level of review for the expenditures of PIs at P Street as was performed for other departments. As a result of an on-site conversation with the Cotton & Company auditor during the fieldwork about the need for further review of expenses by PIs located at P St., we established a policy of having the Director of Administration and Finance review and approve all such expenses. This change occurred toward the end of the period of the audit (2007).

Nonetheless, to respond further to the finding, Carnegie will:

- Mandate that department directors receive and review monthly reports on grant activities, with such report to include, at a minimum, the grant title, agency, start and end dates, PI, current period spending, grant to date spending, and funds remaining. In this report, the Business Manager will call attention to any matters requiring the Department Director's attention. This institution-wide process will be put into practice no later than August 1, 2009. This change will serve to make more concrete the responsibility that the Department Directors already hold, subject to supervision and review by the P St. business office.
- Delegate formal responsibility to the Director of Administration and Finance to serve as the Business Manager for P Street PIs, effective July 1, 2009 – a role that the Director has effectively been playing since the end of 2007. This individual will approve all expenses and effort charged by these PIs. In performing this role, the Director will rely on the P Street accounting staff to continue to perform its overall functions, such as the payment of bills and the recording of information in the general ledger, that would otherwise might be performed by a departmental business office. In addition, P Street's Senior Grants Accountant will review all grant-related charges for P Street's PIs, thereby

performing the grants review function at P Street typically performed in departmental business offices.

#### Finding and Recommendation No. 4

The draft report finds that internal controls over the journal entry process are inadequate and recommends:

“We recommend that NSF’s Director of the Division of Grants and Agreements direct CIW’s Board of Trustees to implement policies and procedures over journal entries for all CIW Departments that require:

- Segregation of duties associated with authorizing, preparing, entering, and approving journal entries.
- Explanations for the purpose of the journal entry.
- Maintenance of all supporting documentation for the journal entry.
- Monitoring to ensure compliance.”

#### *Carnegie’s Comments*

We agree that journal entry processes were insufficient during the timeframe covered by the audit. We have taken several steps in the intervening period since the audit was undertaken to strengthen these controls, and believe that much progress has been made.

Actions already taken include: a) the use of a new standard journal entry form at the Department of Terrestrial Magnetism, beginning with the use of the new accounting system (NAV) in July of 2008; b) the training of all business office staff in the requirements for journal entries, including the need for explanations; c) revised processes at the Observatories, where entries are prepared by the accounting analyst after approval from PI/Cost Center manager and then reviewed by the Business Manager prior to posting; d) revised procedures affecting Plant Biology and Global Ecology; and e) P Street review of all journal entries related to departments that must be posted by P Street.

To further respond to this finding, Carnegie will:

- Amend its policies and procedures by October 1, 2009, to specify the individual departmental practices, by individual position, so as to assure greater segregation of duties over journal entries, adequate explanations, and documentation.
- Include this area in the monitoring plan described under Finding No. 1, to be developed by August 1, 2009.

### Finding and Recommendation No. 5

The draft report finds that segregation of duties and controls over the disbursement process to be inadequate and recommends:

“We recommend that NSF’s Director of the Division of Grants and Agreements direct CIW’s Board of Trustees to develop and implement institution-wide policies and procedures that require all CIW departments to:

- Segregate disbursement functions adequately.
- Require appropriate levels of approval and certification of payments.”

#### *Carnegie’s Comments*

We have taken actions that serve largely to resolve these findings. We will take further steps to strengthen policies and procedures to segregate disbursement functions and require appropriate levels of approval.

During the period of, and following, the review we have resolved the weaknesses specifically identified in the report. The Department of Terrestrial Magnetism has implemented a control log to monitor check issuance. With the implementation of the new accounting system on July 1, 2008, blank check stock is no longer maintained in the various departments, except for a small reserve for manual checks that may be required. The business manager at Embryology revised the process for accessing check stock at the time of the Cotton & Company fieldwork.

At the Department of Plant Biology, the Business Manager has instituted strict segregation of duties. Although blank check stock is no longer needed, strict controls are maintained for the residual stock in the event that a manual check is needed. The Accounts Payable Specialist and Business Manager perform certain segregated duties.

We also note the draft report does not describe any specific weakness regarding the Geophysical Laboratory. During the latter half of 2006 and 2007, that department fully revised its operating practices governing disbursements in order to achieve proper segregation of duties. Absent further information, we believe these procedures to meet all standards and requirements.

Carnegie’s policies and procedures establish certain required approvals for check requests. These policies and procedures also cover the verification of approval by the check signer(s).

Although we believe that the observations in the report are considerably out of date, we have decided to undertake some further steps. Carnegie will amend its policies and procedures by October 1, 2009, to specify the individual departmental practices, by individual position, that will help achieve greater segregation and appropriate levels of approval over the disbursement function. We will require all departments to develop and submit a list of staff and their responsibilities related to disbursement and other financial and accounting functions. The list will be maintained by the Director, Administration and Finance.

### Finding and Recommendation No. 6

The draft report finds that labor-effort reporting procedures are not followed and recommends:

“We recommend that NSF’s Director of the Division of Grants and Agreements direct CIW’s Board of Trustees to:

- Ensure that institution-wide labor-effort reporting procedures are adequately implemented and adhered to by all CIW departments, and that all CIW business managers are properly trained to monitor and enforce compliance.
- Develop and implement procedures that require all personnel to notify supervisors when leave is requested and taken and labor-effort reports [to] accurately reflect such leave.”

### *Carnegie’s Comments*

We remain uncertain as to several of the particulars related to this finding, which seem to reflect some misunderstanding of our processes at the time of the review. Nonetheless, we have considerably strengthened our effort reporting process over the last year – that is, after the review was completed.

We believe there may have been a misunderstanding of our policies and procedures in verbal communications between PIs and the auditors. During the internal control review, the GEO Business Manager explained the entire effort reporting process with the Cotton & Company staff, and provided supporting documentation for all transactions that were selected by Cotton & Company review. There was no mention at that time of any budgeted costs during this process, and there was no mention of any concern by the auditors. We also questioned the PIs who were interviewed by Cotton and Company to attempt to further understand the basis for this finding. We believe that individuals were referring to institution-wide practices related to charges, not to the requirement to report actual time. While an individual is required to report the percentage of actual time spent, under our policies and procedures we do record charges less than that percentage for federal grants when the resulting charge would exceed the amount budgeted. We cover the excess through the endowment. Our only possible explanation for this portion of the finding is that the auditor may have misinterpreted a discussion about policies for charging grants to mean that individuals report budgeted effort.

Carnegie’s implementation of its new accounting and financial system, effective July 1, 2008, has brought about changes in the process involved in the reporting and recording of effort, as well as the reporting and recording of leave. Among the changes are the recording of detailed payroll information, by employee, in the general ledger, and additional controls to help minimize errors in reporting. Further, we have reviewed effort reporting requirements in the meetings of the Standing Working Group.

Regarding leave, our policy does not require advance approval, documented in writing, of annual and sick leave. Some departments, including the Department of Embryology, have implemented such procedures; these occur primarily because some labs with vulnerable animals require certain minimum staffing levels at all times. However, our policy does require reporting of all leave taken. Specifically, under Section IV of the Payroll Policies and Procedures, employees must report days of leave taken along with effort percentages for time worked each month. When this information is entered into the standard effort report form, the leave percentages are automatically calculated and deducted from wages available for distribution among the various cost centers.

To further respond to this finding, based on the observations in the report as well as best practices, Carnegie will conduct additional training in this area to ensure that our policies are understood and are being followed. Specifically, over the next six months we will provide information and instructions to all individuals throughout the organization who are involved in effort reporting, including possibly conducting on-line training for all employees. We will also revise the certification required of business managers through our new accounting system to reemphasize the federal requirements in this area. Finally, we will require that any leave recorded within the effort reporting process to the business office be reviewed by the responsible PI or supervisor.

#### Finding and Recommendation No. 7

The draft report finds that CIW purchase-order procurement procedures are inadequate, and recommends:

“We recommend that NSF’s Director of the Division of Grants and Agreements direct CIW’s Board of Trustees to:

- Establish institution-wide written procedures requiring use of purchase orders for the authorization and budgeting of all CIW department purchases to include dollar thresholds and specific guidelines for purchase-order use.
- Require departments to use purchase orders for obligating and expending funds within CIW’s accounting system.
- Develop and implement a monitoring policy and procedures to ensure that all CIW departments are using purchase-order procedures correctly and consistently.”

#### *Carnegie’s Comments*

The review was undertaken in July through October 2007 and does not reflect the changes that have been implemented in the period after the review. In particular, Carnegie’s purchase order processes have been revised with the implementation of the new accounting and financial management system (NAV), effective July 1, 2008. We concur with the need to update our policies and procedures to reflect these new processes, as well as to specify thresholds for

purchase-order use. However, we do not agree that purchase orders should be required for all goods and services. For example, utilities, direct (ACH) payments, insurance premiums, legal bills, postage, fees from investment managers, lodging and meals, and purchases in remote locations by scientific staff may best be handled and managed through means other than purchase orders – albeit through processes that provide adequate and appropriate controls. We also believe that departments should have some flexibility in determining the particular features to be used within our accounting system. For example, the Observatories has need to use a procurement granule available in NAV, but other departments have no need to use this particular function. Carnegie has not yet implemented the use of this granule at the Observatories, but plans to do so.

To address this finding, we will:

- Issue revised policies and procedures by January 1, 2010.
- Revise processes in those departments currently not using the system-based purchase order feature in NAV so that by January 1, 2010, all departments will be using this feature.
- Establish a monitoring process for purchase orders as part of the overall monitoring plan to be implemented under Finding No. 1.

#### Finding and Recommendation No. 8

The draft report finds certain weaknesses related to other matters, including cash receipts, inventory control, and travel. The report recommends:

“We recommend that NSF’s Director of the Division of Grants and Agreements direct CIW’s Board of Trustees to:

- Require OCIW to properly segregate duties related to cash receipts, make deposits in accordance with its own written procedures, and eliminate its separate bank account for incoming checks.
- Require GEO and PBIO to properly identify federal assets.
- Establish a procedure that ensures that all departments conduct annual asset inventories.
- Formulate and implement a monitoring process that will ensure that all departments comply with OMB and CIW travel regulations regarding meal and lodging costs.”

*Carnegie's Comments*

We have implemented two of these recommendations, as follows:

- With respect to OCIW's handling of cash receipts, we closed the separate bank account on December 5, 2008. OCIW has revised its receipt procedures so that duties are properly segregated. Moreover, we have recently decided to use an on-line deposit system at P Street and at several departments, including the Observatories. The introduction of this new system will require a revision of our policies and procedures for handling such receipts. We will assure that these new procedures are finalized and implemented on a timetable that will coincide with the implementation of the new on-line deposit system, which is currently scheduled to occur in 2009.
- With respect to asset inventories at GEO and PBIO, we have put new procedures in place that will assure the identification of all assets.

To further respond to this recommendation, Carnegie will:

- Implement an annual, rather than the current biannual, inventory process for all departments, beginning with the fiscal year that begins July 1, 2009. Because federal regulations require that such inventories be conducted only every other year, we will assess the annual process after two years and determine whether a timetable consistent with federal regulations is preferable.
- Implement a monitoring process to help assure that all departments comply with applicable OMB regulations and CIW policies. Specifically, we will include travel within the monitoring process described in response to Finding No. 1.

Thank you again for the opportunity to review the report. If there are any questions concerning this response, please do not hesitate to contact me at [REDACTED]

Sincerely,

[REDACTED]



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