MEMORANDUM FOR: Willie E. May, Ph.D.
Director
National Institute of Standards and Technology

FROM: Richard Bachman
Assistant Inspector General for Financial and Intellectual Property Audits

SUBJECT: NIST Working Capital Fund Budgetary Controls Are in Place, but Issues with Carryover Balances, Policies, and Time Charges Should Be Addressed
Final Report No. OIG-16-023-A

This final report contains the results of our audit of the National Institute of Standards and Technology (NIST) working capital fund (WCF). We conducted the audit in response to language included in the Senate Appropriations Committee Report related to the Department's FY 2015 appropriations, which directs OIG to audit all of the Department's working capital funds.¹

Based on our results, we found no significant exceptions to controls related to the carryover of unobligated funds for reimbursable agreements—which help ensure that amounts carried forward are valid and supported—but procedures for evaluating carryover balances in other sources of funds need improvement. For amounts collected in advance on reimbursable agreements, we found no indications that the funds received were other than legally available when earned. We concluded that NIST has controls in place to ensure that it (a) develops reasonable overhead rates and surcharges, and (b) properly distributes charges to the fund’s customers.

See appendix A for details about our audit objectives, scope, and methodology.

Background

Established in 1901, NIST promotes U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology. The NIST WCF was established in the Deficiency Appropriation Act of 1950 (64 Stat. 275, 279, Pub. L. No. 81-583), providing the agency a way to (a) fund the cost of providing services and information to other agencies and the public, (b) efficiently distribute costs that should be shared by all sources of support, and (c) invest in equipment and inventories.

Resources in the fund include

- amounts collected under agreements with government and nongovernment organizations;
- direct appropriations from Congress; and
- fees charged for calibrations and tests, standard reference materials, and miscellaneous services.

NIST is required to recover full costs for services it provides. Appendix B explains the seven components of the fund with amounts collected during recent fiscal years (FYs).

**Objectives**

The overall objective of our audit was to evaluate specific budgetary and fund controls over the NIST WCF in FYs 2012–2014. Specifically, our objectives were to determine whether (1) the carryover balance in the WCF is valid and supported; (2) funds received in advance on reimbursable agreements were legally available when earned; and (3) controls for building overhead rates and distributing charges to NIST projects, divisions, and organizational units are implemented and functioning as intended.

**Findings and Recommendations**

I. Carryover Balances for Reimbursable Agreements Are Reviewed Annually, but Procedures to Evaluate the Need for Carryover Balances in Remaining Fund Sources Need Improvement

Although there was an overall decrease in the carryover balances between FYs 2010 and 2014, we found that carryover balances continue to remain a significant percentage of the WCF total budgetary resources. Since 2010, NIST has taken steps to implement monitoring controls for funds received for reimbursable agreements. Overall, we found that implementation of these controls has improved the management of the fund. However, we found that NIST does not perform detailed analyses of carryover balances in certain components of the WCF. In addition, NIST could not adequately justify the need to retain excess balances instead of returning them to the U.S. Department of the Treasury as specified in the statute. Because NIST does not monitor the carryover for the remaining funds, it could neither provide support or justification for the factors that contributed to the overall decrease nor ensure compliance with federal law.

Carryover balances for the WCF generally consist of both unliquidated obligations and unobligated funds. Unliquidated obligations are those that have been recorded but involve funds that have not yet been fully disbursed. Unobligated balances represent funds that NIST has accepted, but amounts are uncommitted due to the absence of a legal obligation. A 5-year comparison of carryover balances to total budgetary resources in the WCF shows that the annual carryover is about 42 percent of total average budgetary resources (see table I, next page).
### Table 1. Carryover Balance as a Significant Portion of NIST’s Working Capital Fund

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Carryover balance</td>
<td>$145</td>
<td>$126</td>
<td>$135</td>
<td>$94</td>
<td>$88</td>
<td>$118</td>
</tr>
<tr>
<td>Total WCF resources</td>
<td>304</td>
<td>293</td>
<td>306</td>
<td>266</td>
<td>249</td>
<td>284</td>
</tr>
<tr>
<td>Carryover as a portion of total WCF resources</td>
<td>48%</td>
<td>43%</td>
<td>44%</td>
<td>35%</td>
<td>35%</td>
<td>42%</td>
</tr>
</tbody>
</table>

Source: OIG analysis of NIST and Office of Management and Budget data

This declining trend in carryover as a portion of total WCF resources was initially identified in the Government Accountability Office’s 2010 report on NIST’s reimbursable agreements.2

To further break down the carryover balances, we identified two major components: reimbursable agreements and all other WCF components. Reimbursable agreements—about 76 percent of the ending FY 2014 balance—represent work NIST performs for federal agencies and private organizations. This includes work both ongoing and for which NIST has accepted advanced funds but has not yet started. Generally, the advanced funds are reduced as reimbursable costs associated with these agreements are incurred. At the end of the agreement, any existing remaining balance is to be returned to the organization that originated funding.

The remaining carryover balances primarily consist of funds collected but not yet disbursed, and for the payment of future costs associated with

- general administration,
- central administrative offices,
- lab and division program overhead expenses,
- leave and benefits for NIST employees, and
- financing invested equipment.

As the costs for these activities are incurred, NIST charges them directly to the WCF and then recovers them (through, for example, the application of overhead rates and surcharges to customers and loan repayments for invested equipment acquired for NIST labs and divisions).

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As shown in figure 1 below, at the end of FY 2010, NIST carried forward $145 million—whereas, at the end of FY 2014, it carried forward $88 million. Our analysis of the historical trend over a 5-year period shows the carryover balance for reimbursable agreements was relatively constant: from FY 2010 to FY 2014, carryover balances for reimbursable agreements made up 23–27 percent of WCF resources. However, we did note there was significant yearly variation in the remaining WCF components.

Figure 1. NIST WCF Balances Carried Forward During the Last 5 FYs

A. Inadequate oversight of carryover balances in some WCF components

To determine the reasonableness of the WCF carryover amounts—related to reimbursable agreements either in progress or accepted but not started—we reviewed NIST’s procedures performed at year-end for FYs 2013 and 2014. For these carryover balances, we found that controls were in place to ensure that only unexpired funds available for obligation are carried forward into the new FY. In the first quarter of each FY, the NIST Finance Division evaluates unexpired reimbursable agreements as of the end of the prior FY. The analysis takes into account the period of availability of advanced funds, the type of work, the period of performance, and other aspects of the agreement. Through this process, NIST determines which agreements have funding

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3 Funds are available for obligation on a 1-year, multiyear, or no-year (until expended) basis. Such time limitations are referred to as the period of availability.
eligible to be brought forward into the new FY. In addition, we found that the carryover balances brought forward were supported by the individual unexpired agreements.

However, for the carryover amount related to the “all other” funds component of the WCF, we found that NIST does not perform the same level of review to support the reason and need for the balance. This component is primarily comprised of NIST appropriated funds collected for cost reimbursement; unlike for funds collected for external reimbursable agreements, NIST could not provide sufficient justification to support the carryover balances. As a result, NIST could not reasonably demonstrate whether the nonreimbursable carryover balances were valid and needed. NIST did not identify the source of funds to explain how it came up with the carryover balances in the “all other funds” category of the WCF, but it did provide support for carryover balances for reimbursable agreements.4

Chapter 6 of the Department’s Accounting Principles and Standards Handbook states that “Bureau finance officers and program financial system managers are responsible for ensuring that adequate internal controls are established and maintained in all activities under their control… At the bureau level, the management controls should provide reasonable assurance that obligations and costs are in compliance with applicable laws.”5 Also, GAO—which conducted a general study of balances carried forward into future FYs—reported that “[a]nswering key questions during review of carryover balances provides insights into why a balance exists, what size balance is appropriate, and what opportunities (if any) for savings exist.”6

While NIST has implemented procedures to support its decision to carry forward balances needed for reimbursable agreements—which represent a significant part of the total carryover balance in the WCF—it has not in place similarly detailed procedures to explain its reasons for carrying forward balances in the other WCF components.

In the absence of a well-defined process and documentation showing that the analysis of carryover balances in the “all other funds” component of the WCF was executed, NIST could not explain in enough detail, or provide support or justification for, the factors contributing to fluctuations in related carryover balances. Similarly, NIST could not demonstrate that the size of the carryover balance in the “all other funds” category is reasonable.

4 NIST primarily receives non-expiring appropriated funds that have an indefinite period of availability to incur obligations. Because the WCF generally inherits the period of availability of the funding appropriation, we concluded that the risk for obligating expired or cancelled funds within the other fund component was minimal and not tested.


B. Incomplete WCF policies and procedures

The NIST WCF authorizing statute states that, at the close of each FY, earned net income resulting from the operation of the fund that is not needed to restore prior impairment of the fund and to replace equipment and inventories should be returned to the Treasury general fund.\(^7\)

NIST officials stated that no funds have been deemed excess net income and returned to the U.S. Treasury in recent years. According to NIST, this is because its analysis of earned net income for WCF activity shows the overall WCF has annual net losses.

However, because NIST does not have clear policies to calculate earned income, its determination of the annual net loss amounts could not be validated. For example, we found that, although NIST stated that the overall fund experienced losses in FYs 2012–2014, some components of the fund had profits.\(^8\) Table 2 below shows profits and losses for all WCF components according to NIST.

**Table 2. Profits and Losses in All WCF Components, by FY**

<table>
<thead>
<tr>
<th>WCF Component</th>
<th>Profit (Loss) Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FY 2012</td>
</tr>
<tr>
<td><strong>Institutional Support</strong></td>
<td>$(19,483,093)</td>
</tr>
<tr>
<td><strong>Leave and Benefits</strong></td>
<td>34,602</td>
</tr>
<tr>
<td><strong>Other Agency (Reimbursable) Agreements</strong></td>
<td>41,627</td>
</tr>
<tr>
<td><strong>Interdivision Services</strong></td>
<td>6,961,436</td>
</tr>
<tr>
<td><strong>Fee Programs</strong></td>
<td>(714,106)</td>
</tr>
<tr>
<td><strong>Lab and Division Overhead</strong></td>
<td>(439,814)</td>
</tr>
<tr>
<td><strong>Storeroom and Miscellaneous Other</strong></td>
<td>(2,263)</td>
</tr>
<tr>
<td><strong>Profit (Loss) Subject to Return to Treasury</strong></td>
<td>$(13,601,611)</td>
</tr>
</tbody>
</table>

Source: NIST

There is no clear policy on how gains and losses in WCF components should be treated in order to be compliant with the law; because of this, WCF components that had a profit were essentially subsidizing others that incurred a loss. For example, in 2014,

\(^7\) 15 U.S.C. § 278b(f) says in part, “[t]he amount of any earned net income resulting from the operation of the fund at the close of each fiscal year shall be paid into the general fund of the Treasury: Provided, That such earned net income may be applied to restore any prior impairment of the fund, and to ensure the availability of working capital necessary to replace equipment and inventories.”

\(^8\) According to balances provided by NIST, which we did not validate (because doing so was beyond the scope of our audit).
gains for leave and benefits and fee programs totaling $895,193 were used to offset the $14 million loss in institutional support, even though these are managed as distinct project codes and project types in the Commerce Business System. We believe that identifying in policy how to handle gains and losses at the component level would result in more effective management of the fund and would ensure that the amounts charged to WCF customers reflect the cost of actual services provided and work performed.

NIST reconciles expenses and income by WCF activity to the total fund trial balance each month. In doing so, NIST determines its profit or loss position by WCF component. According to NIST’s Finance Division, at the end of the FY—if there is a profit in the WCF as a whole—after excluding amounts for equipment and inventories and to restore prior impairments, any remaining profit is expected to be returned to the Treasury general fund.

Without clearly defined policy and procedures describing management’s expectations, NIST could not demonstrate that excess amounts in some components of the WCF were needed to restore prior impairments and to replace equipment and inventories. Additionally, Federal Internal Control Standards explain that documenting in policies responsibility for operational processes adds to the effectiveness of controls.9

Recommendations

We recommend that the NIST Director and the Associate Director for Management Resources do the following:

1. Establish a process to evaluate and justify carryover balances in the “all other funds” category of the WCF.

2. Establish policy and procedures to  
   a. calculate earned net income in conformance with federal accounting principles which accurately represent the significant WCF components, and  
   b. ensure that earned income balances are periodically reviewed and significant excess or insufficient balances are fully addressed.

II. Funds Received in Advance on Reimbursable Agreements Were Legally Available when Earned

We reviewed a sample of 45 reimbursable agreements to verify that NIST monitors the expiration date of federal funding received in advance. For the sampled agreements, we determined whether (a) NIST correctly assigned the Treasury Account Symbol to funds collected from all federal customers and (b) it was aware of work that had been accepted but not started. We also tested whether expired agreements were closed and unused funds obtained in advance were returned timely.

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For the reimbursable agreements we reviewed, the NIST Finance Division files were complete and contained sufficient supporting documentation. Overall, we found that NIST had implemented policies and procedures to better manage reimbursable agreements, as well as ensure it complies with the time limitations of advanced funds. NIST also has a process to monitor the expiration date of appropriated funding it receives in advance. It has created a Reimbursable Agreements Coordination Office (RACO) to oversee certain aspects of reimbursable agreements activities. RACO has given written guidance to, and conducted training for, NIST organizational units and uses reports to monitor the status of agreements.

III. Controls for Building Overhead Rates and Distributing Charges to NIST Projects, Divisions, and Organizational Units Were Implemented

We reviewed the methodology NIST uses to develop, monitor, and adjust overhead rates and surcharges. We considered whether rates and surcharges are based on current information and whether collections from rates and surcharges are likely to recover the costs that NIST incurs to provide goods and services.

We found that NIST’s policies and procedures were sufficient to develop reasonable WCF overhead rates and properly allocate WCF charges to NIST customers. However, we found that NIST can further improve the accuracy and consistency of salaries charged to the overhead projects—by requiring employees who split their time between directly- and indirectly-funded activities to use actual labor, rather than estimated hours on timekeeping records.

IV. Some Engineering Lab Employees Use Projected Rather than Actual Time when Charging to Projects

At two of its labs, we reviewed the process NIST uses to ensure costs charged to overhead projects are allowable and properly allocated. Because a large amount of those costs included employee salaries, we considered how employees accounted for their time when they work on activities associated with the lab overhead project, as well as on other projects. According to a mandatory Departmental training presentation on time and attendance recording, “Even if [an employee is] working on a project that has a predetermined budget allocation, [the employee] must only record the actual hours worked.”10

During our review, we found that 3 of 10 employees we tested recorded their time based on allocations given to them by a supervisor. These estimated amounts, as well as actual time allocated to overhead activities along with other costs, were then used to determine the overhead rates that were charged to other projects. We found that this approach to timekeeping is inconsistent, because many of the employees in our sample record their effort in the Department’s timekeeping system based on the actual hours worked on projects and activities.

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10 Commerce Learning Center, September 2015, Ensuring Accurate and Complete Time and Attendance Reporting, 10.
According to the Department’s Accounting Principles and Standards Handbook, “The full costs of resources that directly and indirectly contribute to the production of outputs should be assigned to outputs through costing methodologies or cost finding techniques that are most appropriate to the segment’s operating environment and should be followed consistently. Whenever possible, financial accounting and budgetary accounting activities should apply similar costing methodologies.”11

After discussing timekeeping practices with NIST employees, their supervisors, and timekeepers, we found that some use estimates rather than actual time because they find that tracking time more closely is impractical. They explained to us that many employees charge different timecodes during a pay period, and to have an exact amount each day is difficult to track.

The current practice used by some of the lab's employees could result in inaccurate timekeeping and application of costs to the lab overhead and other projects.

**Recommendation**

We recommend that the Associate Director for Laboratory Programs, and the Associate Director for Management Resources do the following:

3. Implement steps to ensure that time the Engineering Lab employees charge to the Lab’s overhead and other projects reflects the actual work performed on the projects.

On March 14, 2016, OIG received NIST’s response to the draft report’s findings and recommendations, which we include here as appendix C. NIST concurred with our findings and agreed with our recommendations. This final memorandum report will be posted on the OIG’s website pursuant to section 8M of the Inspector General Act of 1978, as amended (5 U.S.C. App. 3).

In accordance with Departmental Administrative Order 213-5, please submit to us—within 60 calendar days of the date of this memorandum—an action plan that responds to the recommendations of this report.

We appreciate your cooperation and courtesies extended to us by your staff during our audit. If you have any questions or concerns about this report, please contact me at (202) 482-2877 or Lisa Kelly, Supervisory Auditor, at (206) 220-4715.

cc: Richard Cavanagh, Ph.D., Acting Associate Director for Laboratory Programs/Principal Deputy, NIST
   Mary Saunders, Associate Director for Management Resources, NIST
   George Jenkins, Chief Financial Officer, NIST
   Howard Harary, Ph.D., Director, Engineering Lab, NIST
   Amy Egan, OIG and GAO Audit Liaison, NIST

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Appendix A.
Objectives, Scope, and Methodology

The overall objective of our audit was to evaluate specific budgetary and fund controls over the NIST WCF in FYs 2012–2014. Specifically, our objectives were to determine whether (1) the carryover balance in the WCF is valid and supported; (2) funds received in advance on reimbursable agreements were legally available when earned; and (3) controls for building overhead rates and distributing charges to NIST projects, divisions, and organizational units are implemented and functioning as intended.

Taken as a whole, all components of the WCF obligated about $658 million in FY 2014. The scope of our audit included FYs 2012–2014 as well as part of 2015. We did not examine all components of the WCF. To accomplish our objectives, we reviewed those components of the WCF that make up significant obligations and resources of the fund: overhead rates that recover indirect costs supporting NIST labs, divisions, and general administration; leave and benefits surcharges; and reimbursable agreements and interdivision services.

As part of our audit, we

- reviewed laws, regulations, and policies related to the WCF including 15 U.S.C. § 278b and 31 U.S.C. § 1341, as well as the NIST Administrative Manual Section 8.07 “Working Capital Fund,” NIST Order 505.01 “Cost Accounting,” and NIST Procedure 509.01 “Working Capital Fund.” Although at the time of our audit the NIST Order and Procedure were stamped draft and neither document contained an effective date, NIST managers who attended the audit entrance conference indicated the documents reflect current operations.
- considered whether services provided and accounted for in the fund are within the scope of the enabling legislation.
- interviewed the NIST Chief Financial Officer and staff in the NIST Finance and Budget Divisions to understand their oversight and monitoring of the WCF.
- reviewed cost allocation methods and overhead costs.
- interviewed staff, reviewed reports, and tested a selection of salaries costs at the Material Measurement Lab and the Engineering Lab to determine whether the costs were properly charged to laboratory overhead.
- reviewed 45 reimbursable agreements to (a) evaluate compliance with legal requirements and (b) verify NIST’s controls for ensuring amounts received in advance from other agencies are available when earned.
- performed a multiple-year trend analysis of carryover balances in the fund and obtained NIST’s explanations for fluctuations in amounts carried forward during the last 5 years.
- reviewed leave and benefit rate computations and worksheets to understand the underlying assumptions NIST uses to derive the leave and benefits surcharges.
- analyzed profits and losses in interdivision services project to determine whether any had significant profits or losses.
As part of our audit of NIST’s controls to ensure that the methodology underlying overhead rates and surcharges is reasonable, we performed tests to verify that

- rates are based on current information and periodically reviewed and adjusted.
- a logical relationship between the costs and activities supports the rates.
- knowledgeable employees in NIST’s Finance Division, Budget Division, and other organizational units monitor rates closely throughout the year, making adjustments to rates as needed.
- collections from rates and surcharges are likely to recover the costs that NIST incurs to provide goods and services.
- schedules and reconciliations showing how leave and benefits surcharges are derived, to show that the rates applied to project costs cover the cost to provide leave and benefits to NIST employees.

We conducted this audit from November 2014 through September 2015, at NIST headquarters in Gaithersburg, Maryland, as well as at OIG offices in Seattle, Atlanta, and Washington, DC. The audit was conducted under the authority of the Inspector General Act of 1978, as amended, and Department Organizational Order 10-13, dated April 26, 2013. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and recommendations based on our audit objectives.

Our audit was not a statistical sample of all NIST WCF components. Therefore, the results should not be used as conclusive evidence of the controls in place for areas of the fund not included in our audit.

No specific instances of fraud, illegal acts, significant violations, or abuse was identified in our audit. We did not solely rely on computer-processed data to perform this audit. Although we did not independently verify the reliability of all the computer-processed information we collected, we compared some of the data to supporting documents to verify completeness, accuracy, and reasonableness. Based on our efforts, we believe that the information we obtained is sufficiently reliable for this report.
Appendix B.
Description of NIST WCF Components and Resources at the Ends of FYs 2012, 2013, and 2014

<table>
<thead>
<tr>
<th>NIST WCF Components</th>
<th>Description</th>
<th>Total Resources/ Amounts Collected (in millions $) ending</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FY 2012</td>
</tr>
<tr>
<td>1. Institutional Support</td>
<td>An indirect charge to projects which recovers the costs for general administration, program direction, staff services, and similar costs.</td>
<td>164</td>
</tr>
<tr>
<td>2. Leave and Benefits Surcharges</td>
<td>By law, NIST maintains reserves in the WCF to cover the costs of leave and benefits for NIST employees. Organizational units fund leave through a rate charged against productive labor costs. Benefits are funded through a rate applied to productive labor and leave costs. Actual leave and benefits costs are paid from the WCF.</td>
<td>137</td>
</tr>
<tr>
<td>3. Other Agency (Reimbursable) Agreements</td>
<td>Work NIST performs for public and private organizations on a reimbursable basis. Most payments for services provided are collected in advance.</td>
<td>112</td>
</tr>
<tr>
<td>4. Interdivision Services</td>
<td>Services provided by one NIST organization to another on a reimbursable basis.</td>
<td>67</td>
</tr>
<tr>
<td>5. Lab and Division Overhead</td>
<td>An indirect charge to benefitting projects to cover the costs of developing, managing, and coordinating the lab or division program.</td>
<td>52</td>
</tr>
<tr>
<td>6. Fee Programs</td>
<td>Includes services such as standard reference materials, standard reference data, and calibrations and tests.</td>
<td>55</td>
</tr>
<tr>
<td>7. Invested Equipment</td>
<td>A mechanism for NIST OUs to finance the purchase or manufacture of equipment costing more than $5,000 and having a useful life of more than 1 year. The purchasing division or organizational unit repays the WCF through monthly invested equipment loan repayments.</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: OIG analysis of information NIST provided

NIST uses standard reference materials to transfer measurement science and technology throughout the scientific community, industry, and commerce. Standard reference materials are available in areas such as industrial materials production and analysis, environmental analysis, health measurements, and basic measurements in science and metrology. Established by Congress in 1968, the standard reference data program makes this NIST lab data available to scientists, engineers, and the general public through published tables and databases on the Internet, in hard copy, or as personal computer products that reach a broad section of the technical community.
Appendix C.
Agency Response

MEMORANDUM FOR: Richard Bachman
Assistant Inspector General for Audit

FROM: Mary Saunders
Associate Director for Management Resources

SUBJECT: NIST Response to OIG’s Draft Memorandum NIST Working Capital Fund Budgetary Controls Are in Place, But Issues with Carryover Balances, Policies, and Time Charges Should be Addressed

This memorandum responds to the draft memorandum from the Office of the Inspector General titled, NIST Working Capital Fund Budgetary Controls Are in Place, But Issues with Carryover Balances, Policies, and Time Charges Should be Addressed. The draft memorandum identifies deficiencies in the procedures to evaluate the need for carryover balances in remaining fund sources and some lab employees’ use of projected rather than actual time when charging to projects. NIST concurs with the overall findings and recommendations outlined within the draft memorandum.

Further, NIST will develop and submit a corrective action plan to adequately address the risks identified within the OIG’s draft memorandum.

cc: Amy Egan, NIST OIG Liaison
George Jenkins, Chief Financial Officer NIST

NIST

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