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AUDIT REPORT

OFFICE OF AUDITS

NASA'S MANAGEMENT OF SMALL BUSINESS
INNOVATION RESEARCH AND SMALL BUSINESS
TECHNOLOGY TRANSFER CONTRACTS FUNDED BY THE
RECOVERY ACT

OFFICE OF INSPECTOR GENERAL



National Aeronautics and
Space Administration

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THE CONTRACT NUMBERS IN TABLE 2 AND APPENDIX B HAVE BEEN PARTIALLY REDACTED, AS THE INFORMATION MAY BE CONSIDERED CONTRACTOR PROPRIETARY INFORMATION.

Final report released by:



Paul K. Martin
Inspector General

Acronyms

AIP	Acquisition Integrity Program Office
COTR	Contracting Officer Technical Representative
DCAA	Defense Contract Audit Agency
FAR	Federal Acquisition Regulation
G&A	General and Administrative
NSSC	NASA Shared Services Center
OIG	Office of Inspector General
OMB	Office of Management and Budget
PI	Principal Investigator
PIC	Procurement Information Circular
PMO	Program Management Office
SBIR	Small Business Innovation Research
STTR	Small Business Technology Transfer

OVERVIEW

NASA'S MANAGEMENT OF SMALL BUSINESS INNOVATION RESEARCH AND SMALL BUSINESS TECHNOLOGY TRANSFER CONTRACTS FUNDED BY THE RECOVERY ACT

The Issue

Congress created the Small Business Innovation Research (SBIR) Program in 1982 to encourage small and disadvantaged businesses to participate in federally funded research and development opportunities. Pursuant to statute, 11 Federal agencies are required to participate in the SBIR Program.¹ NASA, which awarded an average of \$112 million annually to small businesses from 2004 through 2008, has the third largest SBIR Program in the Federal Government. Modeled after the SBIR Program, the Small Business Technology Transfer (STTR) Program is much smaller, but with the same basic requirements and phased funding structure. STTR Program funds also go to small business concerns for cooperative research and development; however, award recipients must work with non-profit research institutions, such as universities, to facilitate the transfer of technology.

NASA's SBIR and STTR Programs both use a three-phase approach to award contracts to small businesses for the development of technologies that meet NASA mission needs. The purpose of Phase 1 awards is to determine the commercial merit and feasibility of the proposed innovation. Phase 2 awards are for the development, demonstration, and delivery of that innovation. Phase 3 awards are for the application and commercialization efforts of the innovation and possible transitioning of the innovation into products and services for NASA mission programs.

In 2009, NASA received \$1 billion from the American Recovery and Reinvestment Act (Recovery Act) and allocated \$24.4 million for SBIR and STTR contracts.² The Recovery Act requires a significant level of transparency and accountability to ensure that Recovery Act funds are expended in accordance with the Act's requirements and to make information about these expenditures readily available to the public. The Recovery Act also requires Federal Offices of Inspector General to oversee agency compliance with the Office of Management and Budget's (OMB) Implementing Guidance for the Act, which sets forth the requirements agencies must follow in awarding and modifying

¹ In addition to NASA, the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, and Transportation, the Environmental Protection Agency, and the National Science Foundation participate in the Federal SBIR Program.

² NASA also received \$52 million in reimbursable funds from other Federal agencies, including the National Oceanic and Atmospheric Administration and the Department of Energy.

contracts funded by the Recovery Act.³ NASA's Procurement Information Circulars provide additional guidance for implementing the Recovery Act at NASA.

In January 2011, the NASA Office of Inspector General (OIG) issued a report on NASA's management of its overall SBIR Program.⁴ We found that while NASA's initial choice of SBIR award recipients appeared objective and merit-based, the Agency's 2008 awards contained an estimated \$2.7 million in unallowable and unsupported costs. We also found that NASA lacked adequate procedures to ensure applicants' past performance was considered in selecting Phase 2 awards, and NASA had not implemented appropriate internal controls to prevent fraud and abuse in its SBIR Program. We made a series of recommendations to NASA in that January report, including that the Agency implement specific internal controls that it was not then utilizing. NASA officials generally concurred with our recommendations and are currently implementing corrective actions.

In an effort to ensure proper use of Recovery Act funds, NASA completed a risk assessment of its SBIR and STTR Programs in 2009. As a result of this effort, the Agency developed 13 internal controls intended to ensure the Act's requirements would be met, including requiring contractors to certify quarterly that there was no fraud, waste, or abuse in their contracts; conducting cost/price analysis training for all technical personnel at the NASA Shared Services Center (NSSC); requiring NASA technical personnel to obtain contracting officer technical representative (COTR) certification; and requiring contractors to participate in virtual site visits with NASA officials.⁵ See Appendix C for a complete list of NASA's 13 Recovery Act internal controls.

The overall objective of our audit was to determine whether NASA effectively managed SBIR and STTR contracts awarded with Recovery Act funds. Specifically, we examined whether cost, schedule, and performance milestones were met and whether NASA's Recovery Act internal controls were properly implemented and operating effectively. We also reviewed the status of NASA's implementation of the controls we recommended be adopted in our January 2011 report. See Appendix D for a listing of the recommended controls and the implementation status of each. To accomplish our objective, we reviewed all SBIR and STTR awards funded by the Recovery Act at Langley Research Center, Ames Research Center, and the Jet Propulsion Laboratory. In total, we reviewed 37 contracts (48 percent) of the 77 SBIR/STTR Recovery Act funded awards. In addition, we interviewed Agency program and project officials, including the SBIR Program Manager and the SBIR Business Manager responsible for both the SBIR and STTR Programs. We also visited NSSC, which is responsible for the administrative oversight of all SBIR and STTR contracts. See Appendix A for details of the audit's scope and methodology, our review of internal controls, and a list of prior audit coverage.

³ Office of Management and Budget, "Updated Implementing Guidance for the American Recovery and Reinvestment Act of 2009" (M-09-15, April 3, 2009).

⁴ NASA OIG, "Review of NASA's Management of Its Small Business Innovation Research Program" (IG-11-010-R, January 12, 2011).

⁵ Technical personnel include program investigators and technical project managers.

Results

We found NASA's Recovery Act internal controls were generally effective in ensuring proper oversight, management, and transparency of Recovery Act funded SBIR/STTR contracts. The contracts we reviewed largely met cost, schedule, and performance milestones. In addition, 76 percent of contract deliverables were submitted within the agreed-upon timeframes, and NSSC implemented controls to further reduce the occurrence of late deliverables. However, we also found that due to resource limitations NASA did not implement three Recovery Act internal controls, including two controls relating to COTR certification and training. As a result, we noted seven instances where NASA employees designated as COTRs did not have the proper certification or training required by OMB guidance. In addition, we identified four contracts that contained unallowable equipment costs totaling \$115,297. Lastly, we determined that NASA is making progress implementing the 14 internal controls identified in our January 2011 audit report as necessary to prevent and detect fraud in the SBIR Program.

Recovery Act Controls Were Generally Effective. Our review of 37 SBIR and STTR award contract files found that in most cases contractors met cost, schedule, and performance milestones. We found that 10 of the 13 Recovery Act internal controls NASA implemented in 2009 were operating effectively and led to improved management of the contracts. We identified one of these controls – virtual site visits through which NASA SBIR Program and project officials view contractors' research facilities, confirm key contractor personnel, assess contractors' progress, and ensure that contractors are complying with requirements – as a best practice. NASA SBIR Program officials told us that they intend to extend the practice of virtual site visits to all new SBIR/STTR Phase 2 contractors. We believe the Agency could benefit from applying the other Recovery Act controls, including the three the Agency had not yet implemented, to all SBIR and STTR contracts as well.

Late Deliverables Successfully Mitigated by NSSC Controls. Contractors submitted deliverables on time for 28 of the 37 contracts (76 percent) we reviewed. The remaining 9 contractors submitted deliverables on average between 10 and 60 days after the established deadline. We found that NSSC actively monitors late deliverables for all SBIR and STTR contracts and has taken steps to ensure NASA does not make payments to contractors until the Agency has received and accepted the deliverables. In November 2010, NSSC began generating a biweekly report that identifies late deliverables and describes the remedial actions taken by Agency personnel, such as phone calls or e-mails to the contractor.

NSSC's actions appear to have mitigated the problem of late deliverables. The frequency of late deliverables decreased by 60 percent in the first 5 months of 2011 – from 208 instances of late deliverables for both Recovery Act and non-Recovery Act funded contracts in January 2011 to 84 in May 2011. Currently, NSSC does not provide its report regarding late deliverables to the SBIR Program officials. We believe providing this report to these individuals may result in additional reductions in late deliverables.

Three Recovery Act Controls Not Implemented. NASA officials told us that due to resource limitations they did not implement 3 of the 13 Recovery Act controls. First, NASA did not assign a full-time liaison from the Acquisition Integrity Program Office (AIP) to the SBIR and STTR Programs. However, even in the absence of this control we found that AIP was involved in developing the Recovery Act controls and was available on an as-needed basis to address any integrity issues that arose. According to SBIR Program officials, the Agency is working to identify an AIP liaison for both Programs and hopes to have this position filled in the near future.

The other two Recovery Act controls NASA did not implement relate to training and certification of COTRs. COTRs are responsible for monitoring contractor performance, contract funding, and costs incurred by the contractor, as well as performing critical technical functions to ensure that contracts are managed properly. Obtaining proper certification and training is essential to performing these functions.

We found that the COTRs responsible for seven different Phase 2 contracts did not have the proper certification or required training. In six instances, the COTRs had confirmed they attended training when in fact they had not. In the seventh instance, the assigned individual was provided a 6-month waiver to attend the training. However, he did not complete the training until nearly 18 months after this deadline and more than 9 months after the contract to which he was assigned had been completed. Moreover, at the completion of our fieldwork in November 2011, three of the COTRs without proper certification or training were still assigned to active contracts.

On January 20, 2011, NASA issued Procurement Notice 04-55, “Appointment of Contracting Officer Technical Representatives,” which states that to improve internal controls in the SBIR and STTR Programs, the NASA Federal Acquisition Regulation (FAR) Supplement is revised to require that COTRs on newly awarded Phase 2 and Phase 3 SBIR and STTR contracts must be certified. This policy is a positive step forward.

Unallowable Equipment Costs. We identified direct charges for equipment costs in 4 of the 37 contracts we reviewed for which the contract files contained no documentation or justification as to reasonableness or necessity for the equipment. The 2009 SBIR/STTR Program Solicitation states that NASA will not fund the acquisition of equipment, instrumentation, or facilities costs for Phase 1 and Phase 2 contracts as a direct cost. As a result, we question equipment costs totaling \$115,297 and the associated general and administrative costs of \$30,956 for a total of \$146,253 in questioned costs.⁶ Because we raised similar issues about the allowability of equipment costs in our January 2011 report, SBIR Program officials have taken steps to address this issue. Specifically, NASA changed its 2010 SBIR/STTR Program Solicitation Guide language to clarify when such costs are allowable and to make clear that such costs must be properly justified by the

⁶ General and administrative (G&A) costs are costs incurred by the contractor that are not directly related to the research and development project funded by NASA, but are a necessary cost of the contractor’s business.

contractor and approved by NASA during contract negotiations. However, it remains to be seen whether these actions will address our underlying concerns.

NASA Is Making Progress Implementing Controls Identified in Prior OIG Audit.

The prior OIG audit recommended implementation of 14 internal controls to prevent and detect fraud in the SBIR Program, 9 of which were identified as critical. During the course of this audit, we considered the extent to which the Agency's implementation of the Recovery Act controls had addressed our earlier recommendations. We also reviewed the implementation status of the 14 recommended controls to determine whether the Agency was on track to implement related corrective actions; however, we did not perform any testing to determine their effectiveness. We found that 1 of the 9 critical controls and 1 of the 5 noncritical controls were addressed by the implementation of the Recovery Act controls. Additionally, 3 other recommended critical controls were partially addressed by the implementation of the Recovery Act controls. We also determined the Agency is making progress toward implementing the remaining controls identified in the January 2011 audit report. An update as to the implementation status of each control is documented in Appendix D.

Management Action

The Agency has effectively implemented 10 of the 13 Recovery Act controls it developed to help ensure proper administration of SBIR and STTR contracts funded by the Recovery Act. However, the Agency failed to implement 3 Recovery Act controls due to resource limitations. We recommend that the Agency consider extending these controls to its non-Recovery Act funded SBIR and STTR Programs.⁷ In addition, NASA management should remedy the deficiencies we identified in this report in order to strengthen performance of these controls.

Specifically, we recommended that the Recovery Act Implementation Executive work with the SBIR Program Executive and the Assistant Administrator for Procurement to:

- Revise program policy to require the application of the appropriate Recovery Act controls to improve the administration of the SBIR and STTR Programs.
- Provide the information from NSSC's biweekly late deliverables report to the SBIR Program Manager and Business Manager at key decision points in program implementation so they are aware of any problem contractors and can take actions as necessary.
- Evaluate the feasibility of utilizing the virtual site visit technology for other NASA awards where funds for on-site surveillance are limited.

⁷ Two controls related to entering information in a Government-wide database maintained by the Recovery Act Board would not be applicable to contracts not funded by the Recovery Act.

- Issue a written policy reminder to all contracting officers to follow existing policy on the appointment and removal of COTRs who fail to meet training, certification, and educational requirements.
- Strengthen controls to ensure contracting officers and evaluators maintain proper documentation in the SBIR contract files to justify and validate equipment purchases.

In response to our draft report, NASA’s Chief Financial Officer concurred with four of our recommendations, stating that the Agency’s Recovery Act Implementation Executive will work with NASA’s Assistant Administrator for Procurement and the SBIR/STTR Program Executive to address the recommendations and further strengthen the administration of the SBIR/STTR Programs (see Appendix E for a copy of the Chief Financial Officer’s comments). Specifically, by March 2012 the Assistant Administrator for Procurement will remind contracting officers to follow existing policy on the appointment of COTRs and on the removal of those who fail to meet training, certification, and educational requirements. In addition, by June 2012 the Agency will revise program policy to adopt, where appropriate, the controls that were piloted on the Recovery Act funded awards. The Agency will also perform an analysis of where virtual site visits may be applicable to other types of NASA awards, beyond the Recovery Act and provide the results of this analysis to the OIG. Further, by June 2012 the contracting officers at NSSC will provide the SBIR Program Manager and Business Manager an analysis of past performance of any of the proposers, to include issues such as late deliverables, to factor into the evaluation for new awards. We consider the Chief Financial Officer’s proposed actions responsive to our recommendations and will close the recommendations upon completion and verification of these actions.

The Chief Financial Officer partially concurred with the fifth recommendation, stating that although she agreed that the contract files lacked proper documentation, she does not agree that the costs we identified were unallowable. In explaining her disagreement with our finding, she notes that such costs are allowable when they comply with all of the following requirements: reasonableness; allocability; generally accepted accounting principles and practices; terms of the contract; and FAR Subpart 31.2.

We continue to believe that the costs we identified were unallowable. First, as noted in our report, NASA’s 2009 SBIR/STTR Program Solicitation explicitly states that the Agency will not fund the purchase of equipment as a direct cost. Moreover, FAR 31.201-3 states a cost is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person in the conduct of competitive business. In the absence of any information in the contract files explaining the relevance of the equipment to performance of the contracts or the reasonableness of the amount expended, we were unable to determine whether these costs were prudent or reasonable.

Despite the disagreement about our underlying finding, the Chief Financial Officer listed a number of completed and planned actions to ensure that costs are documented properly in SBIR/STTR files. Specifically, the Agency has trained NSSC contracting officers on

effective proposal evaluation, accounting for costs, and proper documentation of contract files; the format for price negotiation memorandums has been improved to ensure that all elements of cost, including equipment costs, are appropriately considered; and a new technical evaluators' guide to support the proposal selection and award process is expected to be implemented in the coming selection cycle. We consider these actions to be responsive to the intent of our recommendation. Therefore, the recommendation is resolved and will be closed upon completion and verification of the actions.

CONTENTS

INTRODUCTION

Background _____	1
Objectives _____	3

RESULTS

NASA Appropriately Managed SBIR/STTR Contracts Funded by the Recovery Act _____	5
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APPENDIX A

Scope and Methodology _____	13
Review of Internal Controls _____	14
Prior Coverage _____	16

APPENDIX B

Schedule of Questioned Costs _____	17
------------------------------------	----

APPENDIX C

Recovery Act Controls _____	18
-----------------------------	----

APPENDIX D

Controls Recommended in Prior Audit to Prevent and Detect Fraud and Abuse _____	20
--	----

APPENDIX E

Management Comments _____	28
---------------------------	----

APPENDIX F

Report Distribution _____	32
---------------------------	----

INTRODUCTION

Background

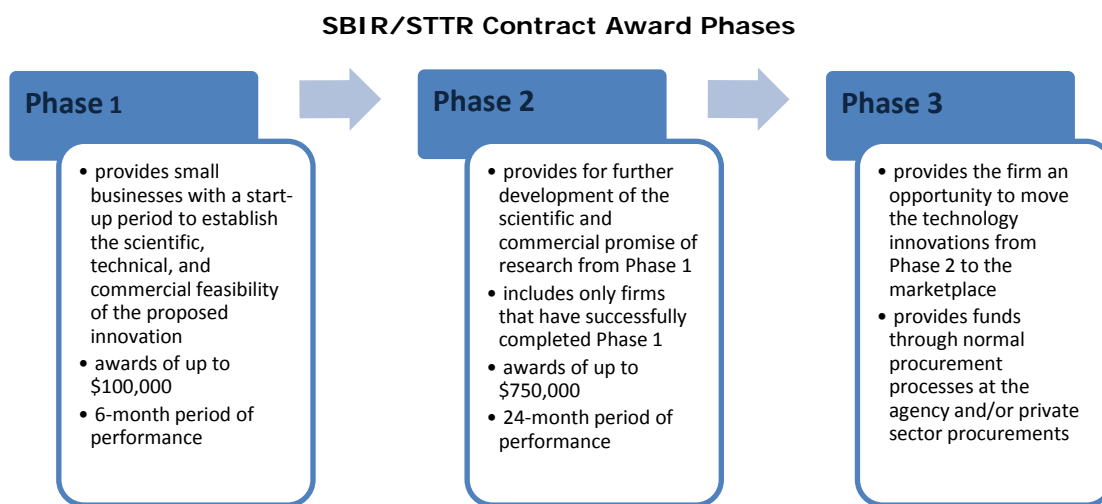
Congress created the Small Business Innovation Research (SBIR) Program in 1982 to stimulate technological innovation, increase participation by small and disadvantaged businesses in federally funded research and development, and increase private-sector commercialization of innovations derived from federally funded research and development. In 2000, Congress enacted legislation that extended and strengthened the SBIR Program and increased emphasis on pursuing commercial applications of SBIR project results. The strengthened SBIR Program provides funding for the critical startup and development stages of innovative research activities while encouraging the commercialization of technology, products, and services.

NASA has the third largest SBIR Program of the 11 participating Federal agencies.⁸ NASA's program is designed to help small businesses develop technologies that address NASA mission-driven needs. For example, an area of research funded under the SBIR Program is the development of Advanced Composite Technologies, which focuses on technologies to mature the use of composite structures and materials for launch vehicles and/or the lunar lander.

Modeled after the SBIR Program, the Small Business Technology Transfer (STTR) Program is much smaller, but has the same basic requirements and phased funding structure. STTR Program funds are also awarded to small business concerns for cooperative research and development; however, award recipients must work with a non-profit research institution, such as a university, to facilitate the transfer of technology.

As shown in the following figure, NASA awards contracts for both its SBIR and STTR Programs in three phases. Phase 1 awards are for determining the commercial merit and feasibility of the proposed innovation; Phase 2 awards are for the development, demonstration, and delivery of that innovation; and Phase 3 awards are for application and commercialization efforts of the innovation and possible transitioning of the innovation into products and services for NASA mission programs.

⁸ In addition to NASA, the participating Federal agencies are the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, and Transportation, the Environmental Protection Agency, and the National Science Foundation.



According to the 2009 SBIR/STTR Program Solicitation, NASA’s objective is to select for award those proposals that offer the best value to the Government and to NASA’s SBIR and STTR Programs.

Recovery Act Funded Awards. On February 17, 2009, the American Recovery and Reinvestment Act (Recovery Act) became law. The Recovery Act seeks to strengthen the U.S. economy by creating new jobs, spurring technological advances in science and health, and investing in infrastructure. The Act requires a significant level of transparency and accountability to ensure that funds are expended in accordance with requirements. NASA received \$1 billion in Recovery Act funds and allocated \$24.4 million for SBIR and STTR projects (see Table 1).⁹

Table 1. Recovery Act Funded SBIR/STTR Contracts			
Date of Award	Type of Award and Phase	No. of Contracts Awarded	Value of Awards
December 2009	SBIR Phase 1	31	\$3,068,423
December 2009	STTR Phase 1	10	\$998,787
January 2010	SBIR Phase 2	26	\$15,611,901
January 2010	STTR Phase 2	3	\$1,799,134
Various 2010	SBIR Phase 3	7	\$2,929,217
Total		77	\$24,407,462

⁹ NASA also received \$52 million in reimbursable funds from other Federal agencies, including the National Oceanic and Atmospheric Administration and the Department of Energy.

To ensure proper use of the Recovery Act funding for SBIR/STTR contracts, in June 2009 NASA completed a risk assessment of its SBIR and STTR Programs. As a result of this assessment, the Agency identified 13 internal controls it believed would help ensure effective compliance with the requirements of the Recovery Act and further strengthen the implementation of the SBIR and STTR Programs at NASA:

1. Issuing a Notice of Intent to alert contractors to Recovery Act requirements.
2. Developing policies and guidelines to require all technical personnel to obtain contracting officer technical representative (COTR) certification.¹⁰
3. Adding a full-time SBIR/STTR liaison from the Acquisition Integrity Program Office.
4. Enhancing the Electronic Handbook (EHB) to include NASA Account Management System (NAMS) security requirements.
5. Completing a surveillance plan for each contract.
6. Conducting Price Cost Analysis training at the NASA Shared Services Center (NSSC).
7. Requiring firms to certify quarterly that there was no SBIR/STTR contract-related fraud, waste, or abuse.
8. Having companies enter data into the Recovery Act website.
9. Having NSSC validate data entered into the Recovery Act website.
10. Checking the Central Contractor Registration (CCR) and Excluded Parties (debarred) databases.
11. Conducting checks of the past performance database.
12. Monitoring Center COTR assignments and delegation.
13. Requiring SBIR/STTR Phase 2 contractors to participate in a virtual (via Internet) site visit with NASA procurement and program official.

Objectives

The overall objective of our audit was to determine whether NASA effectively managed SBIR/STTR contracts funded by the Recovery Act. Specifically, we examined whether

¹⁰ Technical personnel include program investigators and technical project managers.

cost, schedule, and performance milestones were met and whether the new Recovery Act internal controls identified by the Agency were properly implemented and operating effectively. To accomplish our objective, we reviewed all SBIR and STTR awards funded by the Recovery Act at Langley Research Center, Ames Research Center, and the Jet Propulsion Laboratory. In total, we reviewed 37 contracts, or 48 percent of all 77 SBIR/STTR awards funded by the Recovery Act. We also performed a site visit at NSSC, which is responsible for the administrative oversight of all SBIR/STTR contracts. See Appendix A for details of the audit’s scope and methodology, our review of internal controls, and a list of prior audit coverage.

NASA APPROPRIATELY MANAGED SBIR/STTR CONTRACTS FUNDED BY THE RECOVERY ACT

We found that NASA was generally effective in managing contracts funded by the Recovery Act and that the Agency had fully implemented 10 of the 13 internal controls it developed specifically for these contracts, including conducting virtual site visits of Phase 2 contractors. In our judgment, the Agency could benefit from applying these controls across both the SBIR and STTR Programs.¹¹ Further, the contracts we reviewed largely met cost, schedule, and performance milestones, and the contractors were generally providing deliverables on time. In addition, NSSC has implemented a control to ensure contractors are not paid until their deliverables are submitted and approved.

NASA had not implemented three of the Recovery Act controls it identified in 2009, including two controls relating to COTR training and certification processes. We found that 7 of the 14 COTRs responsible for Phase 2 Recovery Act contracts did not have the certification or training required to perform their duties. We also identified four contracts in which \$115,297 in equipment costs and \$30,956 in associated general and administrative (G&A) costs were charged as direct costs without proper justification.

Recovery Act Controls Helped Ensure Proper Contract Performance

Implementation of Recovery Act Controls. In June 2009, NASA's Recovery Act Implementation Executive, Acquisition Integrity Program Office (AIP) representatives, and SBIR Program officials completed a risk assessment of the SBIR and STTR Programs in light of the requirements of the Recovery Act.¹² As a result of this assessment, they identified 13 internal controls they believed would ensure effective implementation of Recovery Act requirements. (Appendix C provides full details of NASA's Recovery Act controls and their implementation status.)

Based on interviews conducted with the COTRs and SBIR Program officials as well as our testing, review of contract file documents, and assessment of contract performance, we determined that NASA had fully implemented 10 of the 13 controls and that these 10 controls were operating effectively. Based on our review, we believe the Agency would

¹¹ Two controls related to entering information in a Government-wide database maintained by the Recovery Act Board would not be applicable to contracts that are not funded by the Recovery Act.

¹² SBIR Program Officials are responsible for the programmatic oversight of NASA's SBIR and STTR Programs and include the SBIR Program Manager and the SBIR Business Manager.

benefit from applying these controls across the SBIR and STTR Programs to non-Recovery Act funded awards.

Virtual Site Visits Have Helped NASA Monitor Contractor Performance. One of the Recovery Act internal controls NASA implemented is virtual site visits for Phase 2 contractors.¹³ NASA officials conduct these virtual site visits using Internet-based meeting software with visual and voice telecommunication. The visits enable NASA officials to view contractors’ research facilities, compare actual contractor personnel to proposed personnel, assess contractor progress, and ensure that contractors are complying with requirements without incurring the cost and time associated with traveling to the contractors’ physical locations. During the visits NASA personnel assess the contractors’:

- oversight of project activities;
- progress to date;
- research plan to achieve project goals;
- research accomplishments and their impacts to date;
- project management and financial status; and
- future research goals and activities.

According to the SBIR Program Manager, the SBIR Program Management Office plans to start conducting virtual site visits on all new contractors that received a 2009 SBIR/STTR Phase 2 non-Recovery Act award.

We applaud NASA’s use of technology to develop a low-cost alternative to physical site visits and agree with NASA’s plan to expand these visits to all new Phase 2 SBIR and STTR contracts. We also believe that NASA should consider utilizing this tool to monitor other NASA awards where funding for on-site surveillance activities is limited.

Deliverables Received on Time and Controls Implemented to Improve Timeliness.

For 28 of the 37 contracts we reviewed (76 percent), the contractors submitted the required deliverables by the due dates identified in the contract and in NASA’s SBIR/STTR Electronic Handbook used by NSSC to administer the contracts. During our review, we found that NASA has taken several steps to help ensure that contractors meet their due dates.

First, NASA has programmed the Electronic Handbook to prevent contractors from submitting invoices for payment until NASA technical personnel have received and accepted the required deliverables. We reviewed the validity of this function by checking contracts with late deliverables against payments recorded in NASA’s electronic financial

¹³ Virtual site visits have not been instituted for Phase 1 contracts due to the large number of awards, the 6-month period of performance, and the low dollar amount (less than \$100,000) associated with the contracts.

management system. We noted no instances of payments made before deliverables had been recorded in the Electronic Handbook as received and accepted. In an effort to further reduce the incidence of late deliverables, the SBIR Program Management Office is working on enhancements to the Electronic Handbook to enable a more proactive means of notifying contractors and NASA technical personnel of approaching due dates.

Second, NSSC generates a biweekly report that identifies late deliverables and the actions NASA personnel have taken in response, such as phone calls or e-mails to the contractor. NSSC sends the report to the contracting officer, who is responsible for ensuring that appropriate action is taken. Implemented in November 2010, this control has reduced the frequency of late deliverables by 60 percent. In January 2011, 2 months after the control was implemented, NSSC reported 208 instances of late deliverables for both Recovery Act and non-Recovery Act funded SBIR/STTR contracts. By May 2011, that number had decreased to 84 instances of late deliverables. However, NSSC does not provide its biweekly report to the SBIR Program or Business Managers. We believe providing this report to these individuals may result in additional reductions in late deliverables.

Three Recovery Act Controls Not Implemented. We found that the Agency had not implemented three of the Recovery Act controls because, according to Program officials, of resource limitations. First, NASA did not assign a full-time SBIR/STTR Program liaison from AIP. One of AIP's responsibilities is to increase fraud awareness and minimize waste and abuse within NASA programs. However, we found that AIP was involved in developing the 13 Recovery Act controls as well as in drafting the Notice of Intent through which NASA informed contractors of the special requirements applicable to Recovery Act funded contracts. In addition, AIP has been available as needed to help address integrity issues with the contracts as they arose. SBIR Program officials also told us that they are working to identify an AIP liaison for both the SBIR and STTR Programs and hope to have this position filled in the near future.

The other two Recovery Act controls NASA has not implemented related to COTR certification and training. In the absence of these controls, we found that 7 of the 14 individuals assigned as COTRs for Phase 2 contracts did not have the certification or training required to perform their duties. COTRs are the liaisons between NASA and the contractor and are responsible for performing critical technical functions to ensure that contracts are managed properly. Obtaining proper certification and training is essential to performing these functions. Moreover, Office of Management and Budget (OMB) guidance recommends that COTRs achieve and maintain this certification.¹⁴

In six of the seven instances in which the COTRS lacked proper certification, they incorrectly affirmed on the COTR delegation letter that they had been certified and attended the basic training. In the seventh instance, the COTR acknowledged that he did not have the required training but agreed to complete the training by March 25, 2010. However, this individual did not complete the training until September 16, 2011, nearly

¹⁴ OMB Memorandum, "The Federal Acquisition Certification for Contractor Officer Technical Representatives," November 26, 2007.

18 months after the agreed-upon date and 9 months after the completion of the Recovery Act contract to which he was assigned. Although we brought these issues to management's attention in July 2011, because work on the Recovery Act funded contracts was nearing completion, none of the COTRs were removed from their duties or provided training. Moreover, at the completion of our fieldwork, in November 2011, three of these COTRs remained assigned to active contracts.

The contracting officer responsible for all seven of these contracts was unaware of the COTR training issues until we brought them to her attention. She indicated the first six instances were the result of an administrative error due to the delegated COTR checking an incorrect box on the COTR delegation letter. The seventh instance resulted from the individual not having time to attend the training. We believe had the Agency implemented the Recovery Act controls relating to COTR certification and training, these issues could have been avoided.

On January 20, 2011, NASA issued Procurement Notice 04-55, "Appointment of Contracting Officer Technical Representatives," which states that to improve internal controls in the SBIR and STTR Programs, the NASA Federal Acquisition Regulation (FAR) Supplement is revised to require that COTRs on newly awarded Phase 2 and Phase 3 SBIR/STTR contracts are certified. While a positive step forward in strengthening internal controls over the SBIR/STTR Programs, this policy only applies to contracts awarded after January 20, 2011, and therefore will not remedy the issue of the existing COTRs that lack the required certification and training.

NASA Paid Contractors for Unallowable Costs. We found that NASA awarded Recovery Act funded contracts that contained \$115,297 in equipment costs that were unallowable based on the 2009 SBIR/STTR Program Solicitation and the lack of documentation supporting their necessity. Of the 37 contracts files we reviewed, we identified 4 in which equipment was charged as an "other direct cost." However, NASA's 2009 SBIR/STTR Program Solicitation states that "NASA will not fund the purchase of equipment, instrumentation, or facilities under SBIR/STTR contracts as a direct cost." It further provided that the offeror should describe the relevant facilities and equipment, their availability, and those to be acquired to support the proposed activities.¹⁵ As a result, we question these costs as well as an additional \$30,956 in associated G&A costs for a total of \$146,253 in questioned costs.

¹⁵ The 2009 SBIR/STTR Program Solicitation was released prior to NASA receiving Recovery Act funds; therefore, the award process was not subject to NASA's Recovery Act controls.

Table 2. Unallowable Equipment Costs					
Phase	Contract Number (redacted)	Equipment Charged	Equipment Costs	General and Administrative Costs*	Total Questioned Costs
Phase 1	NNX10RA [REDACTED]	Optics and electronics	\$12,000	\$780	\$12,780
Phase 1	NNX10RA [REDACTED]	Supplies for an analyzer system	\$7,500	\$1,411	\$8,911
Phase 2	NNX09RA [REDACTED]	Not Specified	\$13,797	\$6,346	\$20,143
Phase 2	NNX10RA [REDACTED]	Camera and electronics	82,000	22,419	104,419
Total			\$115,297	\$30,956	\$146,253
* G&A costs are costs incurred by the contractor that are not directly related to the research and development project funded by NASA, but are a necessary cost of the contractor's business.					

We found no information in the contract files explaining the relevance of the equipment to performance of the contracts. In addition, the pre-negotiation technical review questions contained no explanation of the need for the equipment and the post-award reviewer did not identify why the equipment was needed to achieve the objectives of the contract. Accordingly, we were unable to determine whether these costs were reasonable and necessary.

Comparable to the finding in our 2011 audit report, contracting officers allowed these costs as other direct costs without proper justification. In their response to the January 2011 OIG report, NASA management stated that the technical evaluators did not object to the proposed equipment costs, the authority to allow equipment purchases was within the discretion of the contracting officer, and that the solicitation might not have accurately reflected the Agency's intent regarding the allowability of equipment costs. To address this issue, NASA changed the 2010 SBIR/STTR Program Solicitation Guide language to clarify the allowability of equipment costs for 2010 awards, including the need for the purchase to be properly justified by the offeror and approved by NASA during contract negotiations. However, the wording in the 2009 SBIR/STTR Program Solicitation used for award of Recovery Act funded contracts did not allow for equipment costs to be charged as direct costs; therefore, we question the equipment and associated G&A costs charged to these contracts. (See the Schedule of Questioned Costs, Appendix B.)

Implementation of Controls Identified in Prior OIG Audit. In our January 2011 audit report we recommended that NASA implement 14 internal controls to help prevent and detect fraud in the larger SBIR Program. During the course of this audit, we reviewed the status of the Agency's efforts to implement our recommendations and whether the Agency's new Recovery Act controls, if applied across the SBIR/STTR Programs, would remedy any of the control deficiencies identified in the January 2011 report. However, we did not perform testing to determine the effectiveness of the controls. We found that issues related to 2 of the 14 controls (14 percent) were addressed through implementation

of the Recovery Act controls. Additionally, 3 other recommended controls were partially addressed by the implementation of the Recovery Act controls. We also determined the Agency is making progress toward implementing corrective actions to address the remaining controls. The status of each control is provided in Appendix D. However, as previously stated, the status of the controls is based solely on interviews conducted and does not constitute a comprehensive review of NASA’s efforts to implement these controls and remedy the January 2011 report’s findings.

Recommendations, Management’s Response, and Evaluation of Management’s Response

Recommendation 1. The Recovery Act Implementation Executive should work with the SBIR Program Executive and Assistant Administrator for Procurement to revise program policy to require the application of the Recovery Act controls, as appropriate, to improve the administration of the SBIR and STTR Programs.

Management’s Response. The Chief Financial Officer concurred with this recommendation, stating that NASA’s SBIR/STTR Program Executive and Program Manager will revise program policy by June 2012 to adopt, where appropriate, the controls piloted on the Recovery Act funded awards. Of the 13 controls that NASA adopted, 3 related to notification and reporting provisions specific to the Recovery Act, and therefore are not applicable to the Agency’s broader Program. Eight of the remaining 10 controls have been applied to the broader Program, and the Agency is working to implement the remaining two by June 2012.

Evaluation of Management’s Response. Management’s proposed actions are responsive to the intent of the recommendation. Therefore, the recommendation is resolved and will be closed upon completion and verification of the proposed actions.

Recommendation 2. The Recovery Act Implementation Executive should work with the SBIR Program Executive and Assistant Administrator for Procurement to coordinate with NSSC’s Lead SBIR Contracting Officer to develop and implement procedures to provide the information from the biweekly late deliverables report to the SBIR/STTR Program Manager and Business Manager at key decision points in program implementation. This would enable them to be aware of any problem contractors with late deliverables so that they can take additional action as necessary, including limiting the award of any future contracts.

Management’s Response. The Chief Financial Officer concurred with this recommendation, stating that by June 2012 the contracting officers at NSSC will provide the SBIR/STTR Program Manager and Business Manager an analysis, at the time of new proposal selection, that includes past performance issues of the proposers so that this information may be factored into evaluations.

Evaluation of Management's Response. Management's proposed actions are responsive to the intent of the recommendation. Therefore, the recommendation is resolved and will be closed upon completion and verification of the proposed actions.

Recommendation 3. The Recovery Act Implementation Executive should work with the SBIR Program Executive and Assistant Administrator for Procurement to evaluate the feasibility of utilizing the virtual site visit technology for other NASA awards where funds for on-site surveillance are limited.

Management's Response. The Chief Financial Officer concurred with this recommendation, stating the Recovery Act Implementation Executive will work with the Assistant Administrator of Procurement to perform an analysis of where this best practice may be applicable to other types of NASA awards beyond the Recovery Act. The results of the analysis will be provided to the OIG by June 2012.

Evaluation of Management's Response. Management's proposed actions are responsive to the intent of the recommendation. Therefore, the recommendation is resolved and will be closed upon completion and verification of the proposed actions.

Recommendation 4. The Recovery Act Implementation Executive should work with the SBIR Program Executive and Assistant Administrator for Procurement to issue a written policy reminder to all contracting officers to follow existing guidance on the appointment and removal of COTRs who fail to meet training, certification, and educational requirements to ensure they do not perform oversight on NASA contracts until these requirements are met.

Management's Response. The Chief Financial Officer concurred with this recommendation, stating that by March 2012 the Assistant Administrator for Procurement will remind contracting officers to follow existing policy on the appointment and removal of COTRs who fail to meet training, certification, and educational requirements.

Evaluation of Management's Response. Management's proposed actions are responsive to the intent of the recommendation. Therefore, the recommendation is resolved and will be closed upon completion and verification of the proposed actions.

Recommendation 5. The Recovery Act Implementation Executive should work with the SBIR Program Executive and Assistant Administrator for Procurement to strengthen controls to ensure contracting officers and evaluators maintain proper documentation in the SBIR contract files to justify and validate the necessity of equipment purchases.

Management's Response. The Chief Financial Officer partially concurred with this recommendation, agreeing that the contract files lacked proper documentation but rejecting the underlying finding that the equipment costs were unallowable.

However, the Chief Financial Officer also stated that corrective action has already been taken to resolve the documentation issues we identified. Specifically, the Agency has trained the contracting officers at NSSC on effective proposal evaluation, accounting for costs, and assuring that proper documentation of this evaluation is in the contract files; the format for the price negotiation memorandums has been improved to assure that all elements of cost, including equipment costs, are appropriately considered; and a new technical evaluators' guide to support the proposal selection and award process is expected to be implemented in the coming SBIR/STTR selection cycle.

Evaluation of Management's Response. We continue to believe that the costs we identified were unallowable. First, as noted in our report, NASA's 2009 SBIR/STTR Program Solicitation explicitly states that the Agency will not fund the purchase of equipment as a direct cost. Moreover, FAR 31.201-3 states a cost is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person in the conduct of competitive business. In the absence of any information in the contract files explaining the relevance of the equipment to performance of the contracts or the reasonableness of the amount expended, we were unable to determine whether these costs were prudent or reasonable.

Despite the disagreement about our underlying finding, the Chief Financial Officer listed a number of completed and planned actions to ensure that costs are documented properly in SBIR/STTR files. We consider these actions to be responsive to the intent of our recommendation. Therefore, the recommendation is resolved and will be closed upon completion and verification of the actions.

APPENDIX A

Scope and Methodology

We performed this audit from January 2011 through January 2012 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 conclusions based on our audit objectives.

The scope of our audit included a review of all Phase 1, 2, and 3 contracts funded with Recovery Act funds. This universe totaled 77 contracts with a combined value of \$24.4 million. We selected and reviewed a judgmental sample of 37 of these contracts, which amounted to 48 percent of the total universe: 18 Phase 1 awards, 14 Phase 2 awards, and 5 Phase 3 awards. We reviewed all Small Business Innovation Research Program (SBIR) and Small Business Technology Transfer Program (STTR) awards funded by the Recovery Act and programmatically managed by the three NASA Centers with the highest concentration of awards – Langley Research Center, Ames Research Center, and the Jet Propulsion Laboratory. We also performed a site visit at the NASA Shared Services Center (NSSC), which is responsible for the administrative oversight of all SBIR/STTR contracts. We also conducted interviews of SBIR Program officials at Headquarters.

As part of our review, to determine if the implementation of the Recovery Act controls was effective as well as determining whether cost, schedule, and performance milestones were met on Recovery Act contracts, we interviewed Agency program and project officials and reviewed contract files, technical reports produced by NASA's Electronic Handbook, and other documentation. Our fieldwork also included interviews of SBIR Program officials to assess the progress of the implementation of internal controls identified in the prior OIG audit. Because the prior audit focused on program year 2008 SBIR awards and our audit focused on program year 2009 SBIR/STTR awards funded by the Recovery Act, many of these controls were not implemented prior to the start of our audit.

Our process for reviewing documentation included:

1. Reviewing requirements for SBIR/STTR contracts as stated in the 2009 NASA SBIR/STTR Solicitation.
2. Interviewing SBIR/STTR Program and technical officials, procurement officials, technical evaluators, COTRs, and contracting support personnel to identify specific procedures for reviewing and awarding contracts under the Recovery Act.

3. Reviewing contract files for the judgmentally selected sample of 37 program year 2009 SBIR/STTR Recovery Act contracts to assess whether costs were properly accounted for and supported.

Use of Computer-Processed Data. We used data from two databases: (1) NASA's Electronic Handbook, and (2) SAP, NASA's financial management system used to process invoices, which is accessible by NASA personnel and SBIR/STTR contractors. The Electronic Handbook is used for all SBIR/STTR transactions such as proposal submissions, proposal evaluations, documentation submissions, and correspondence. We used the Electronic Handbook data for the fiscal year 2009 contracts we reviewed. We compared the data obtained from the Electronic Handbook to contract file data provided to determine the reliability and accuracy of the data extracted from the Electronic Handbook. Due to the presence of late deliverables on nine contracts in our sample, we ran SAP reports to ensure payment was not made to the contractor prior to the acceptance of the late deliverable. We reviewed the invoices submitted by the contractor in SAP and traced them back to the applicable data in the Electronic Handbook and the contract files. Based on our testing, we verified that the date payments were made was consistent with the date the deliverables were accepted by technical personnel; we noted no inconsistencies. As we noted no issues based on the comparisons between the source data and the computer processed data, we determined the systems we utilized, for purposes of our audit, to be reliable.

Review of Internal Controls

Our review of the Recovery Act internal controls included a review of NASA's policies and procedures as they related to the Recovery Act. Specific controls were established over SBIR/STTR contracts funded by the Recovery Act (see Appendix C) as a way to mitigate fraud, waste, and abuse in the program and ensure compliance with Recovery Act requirements. We reviewed the requirements of the Recovery Act as identified in the "Updating Implementing Guidance for the American Recovery and Reinvestment Act of 2009," issued by OMB, April 3, 2009. We also reviewed the "American Recovery and Reinvestment Act Implementation Report for NASA Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)" issued by the Recovery Act Implementation Team, on October 6, 2010. Included in this Implementation Report was the Procurement Information Circular (PIC) 09-06B, "Contracting with Recovery Act Funds," July 8, 2009. We reviewed this PIC and subsequent PICs issued through November 23, 2010. The PICs we reviewed are designed to document the Agency's internal control requirements and we used this document to ensure that NASA was complying with Recovery Act Provisions, OMB Guidance and NASA policy.

In addition to reviewing the above guidance, we also met with the Recovery Act Implementation Executive and other NASA SBIR Program officials to gain an understanding of the Recovery Act controls and their implementation. Our interviews

with NASA officials were used as a means to discuss contract performance processes and provide supporting documentation to ensure the Recovery Act internal controls were functioning effectively. As discussed in this report, our recommendations, if implemented, will improve these Recovery Act controls and enable the majority of them to be expanded to both the SBIR and STTR Programs.

For our review of internal controls, we also reviewed guidance from OMB Circular No. A-123 “Management’s Responsibility for Internal Control,” December 21, 2004, and NASA’s fiscal year 2010 report on OMB Circular A-123, Appendix A, “Internal Control Over Financial Reporting.” In addition, we reviewed the Government Accountability Office’s “Standards for Internal Control in the Federal Government,” November 1999, and “Internal Control Management and Evaluation Tool,” August 2001.

In accordance with OMB Circular A-123, we reviewed NASA’s “Certification of Reasonable Assurance over Internal Controls” for the Innovative Partnership Program (IPP) and for the Office of Small Business, which are responsible for some of the functions of the SBIR and STTR Programs. Both offices performed self-assessments on the internal controls over the effectiveness and efficiency of operations and compliance with laws and regulations. No internal control weaknesses relevant to this audit were identified in the self-assessments. In addition, management from both offices also provided assurance that there were no material weaknesses found in the design or operation of these internal controls.

Further, we reviewed the internal controls from the prior OIG report where specific controls were identified that would prevent and detect fraud and abuse in SBIR contracts. The prior OIG report identified 24 controls necessary to prevent and detect fraud and abuse. Of these 24 controls, 14 were determined to be absent from SBIR Program processes. During the course of our audit, we reviewed the Agency’s progress in implementing these 14 internal controls; however, we did not perform any testing to determine their effectiveness. Our review of the implementation status of these 14 controls was limited to interviews with SBIR officials and provides evidence of the steps the Agency has taken implement correct actions to address the issues uncovered in the previous SBIR audit.

Prior Coverage

During the last 5 years, the NASA Office of Inspector General (OIG), the Government Accountability Office (GAO), the National Research Council (NRC), and the Department of Energy (DOE) have issued 6 reports of particular relevance to the subject of this report; these reports are listed below. Unrestricted reports can be accessed over the Internet at <http://oig.nasa.gov/audits/reports/FY12> (NASA OIG), <http://www.gao.gov> (GAO), <http://www.nap.edu/catalog> (NRC), and <http://www.ig.energy.gov> (DOE).

NASA Office of Inspector General

“Review of NASA’s Management of Its Small Business Innovation Research Program” (IG-11-010-R, January 12, 2011)

“Fraud, Waste, and Abuse in the SBIR Program” Testimony of Thomas J. Howard, Acting NASA Inspector General, August 6, 2009

Government Accountability Office

“Small Business Innovation Research: Observations on Agencies’ Data Collection and Eligibility Determination Efforts” (GAO-09-956T, August 2009)

“Recovery Act Contracting Approaches and Oversight Used by Selected Federal Agencies and States” (GAO-10-809, July 2010)

National Research Council

“An Assessment of the Small Business Innovation Research Program at the National Aeronautics and Space Administration” (2009)

Department of Energy

“Management Controls over Monitoring and Closeout of Small Business Innovation Research Phase II Grants” (OAS-M-08-09, July 2008)

SCHEDULE OF QUESTIONED COSTS

Questioned Equipment Costs*					
Phase	Contract Number (redacted)	Equipment Costs	General and Administrative Costs	Total Questioned Costs	Page
Phase 1	NNX10RA [REDACTED]	\$12,000	\$780	\$12,780	10
Phase 1	NNX10RA [REDACTED]	\$7,500	\$1,411	\$8,911	10
Phase 2	NNX09RA [REDACTED]	\$13,797	\$6,346	\$20,143	10
Phase 2	NNX10RA [REDACTED]	\$82,000	\$22,419	\$104,419	10
Total		\$115,297	\$30,956	\$146,253	
<p>* Questioned Costs are expenditures that are questioned by the OIG because of an alleged violation of legal, regulatory, or contractual requirements, are not supported by adequate documentation at the time of the audit, or are unnecessary or unreasonable.</p>					

RECOVERY ACT CONTROLS

This appendix table lists NASA’s 13 Recovery Act internal controls, showing their implementation status as well as additional notes on implementation status.

Recovery Act Control	Implemented?	Notes
1. Issue a Notice of Intent to each company awarded a Recovery Act contract to inform all parties and participants of the Recovery Act reporting provisions of the SBIR/STTR Programs and to describe the additional surveillance requirements to reduce potential for fraud, waste, and abuse.	Yes	This control is operating effectively on Recovery Act contracts.
2. Develop policies and guidelines to require all technical personnel to obtain COTR certification.	No	We identified seven instances where a COTR was not certified.
3. Add a SBIR/STTR Program liaison from the Acquisition Integrity Program Office (AIP).	No	According to NASA AIP personnel, there is insufficient staff to provide this support. However contracting officers at NSSC told us that when the AIP needs to be consulted, NSSC will do so.
4. Enhance the Electronic Handbook (EHB) to include NASA Account Management System (NAMS) security requirements.	Yes	This control is operating effectively on Recovery Act contracts.
5. Complete a surveillance plan for each contract, identifying methods and procedures that the Government will use to review and evaluate contractor performance to ensure that the proposed contract standards detailed in the contract and the scope of work are achieved along with special requirements under the Recovery Act.	Yes	This control is operating effectively on Recovery Act contracts.
6. Conduct cost/price analysis training at NSSC.	Yes	Training has been provided for personnel at NSSC.
7. Require firms to certify no waste, fraud, or abuse on a quarterly basis.	Yes	This control is operating effectively on Recovery Act contracts.
8. Require contractors to enter data into the Recovery Act financial reporting website on a quarterly basis.	Yes	This control is operating effectively on Recovery Act contracts.
9. Require NSSC to validate the data entered at the Recovery Act website.	Yes	This control is operating effectively on Recovery Act contracts.

Recovery Act Control	Implemented?	Notes
10. Check the Central Contractor Registration database and Excluded Parties (Debarred) databases to ensure the contractor is eligible for Federal awards.	Yes	This control is operating effectively on Recovery Act contracts.
11. Conduct checks of the past performance database, obtain 3 additional references, and check current financial standing with banks.	Yes	This control is operating effectively on Recovery Act contracts.
12. Monitor the Center COTR assignments and delegation.	No	We identified seven instances where a COTR was not certified.
13. Use virtual site visits to assess the progress on the contracts and ensure that contractors are complying with contracting requirements.	Yes	This control is operating effectively on Recovery Act contracts.

**CONTROLS RECOMMENDED IN PRIOR
AUDIT TO PREVENT AND DETECT
FRAUD AND ABUSE**

Our January 12, 2011, audit (IG-11-010) identified 24 controls that could prevent or detect fraud and abuse. Of those 24 controls, 14 had not been implemented by NASA at the time of our audit. This appendix table shows their implementation status as of November 2011.

Fraud Category 1: Firms or Principal Investigators Received Duplicate Awards for Same Research		
IG-11-010-R Recommended Control	Covered by Recovery Act Controls?	Comments
<p>1. SBIR Program Management Office (PMO) performs automated word search of (1) SBIR research proposals submitted to NASA and (2) research proposals funded by other SBIR awards using the Electronic Handbook (EHB) and the Small Business Administration databases. Automated word search produces a report of research proposals submitted to NASA that appear to duplicate proposals funded through other SBIR awards. PMO enlists technical personnel to compare research proposals and verify whether a proposal a firm submitted to NASA duplicates a proposal that firm received SBIR award funding for from another Federal agency.</p> <p>(Reference Control 4 in Appendix D of Audit Report IG-11-010-R.)</p>	<p>No</p>	<p>PMO does not have unilateral authority to search across agencies. Thus, PMO officials have been unable to run searches against the Small Business Administration’s <i>Tech-Net</i> database and are working on a process to try to implement searching this database. That said, procedures in use include a two-pronged approach to search for duplicate proposals:</p> <p>1. Software Approach: When proposals are submitted, a software program is run on the proposal project description abstracts to check for duplicity. The software allows the controller to set the percentage of duplicity they are looking for and compares each of the abstracts.</p> <p>2. Manual Approach: When proposals are received, they are divided alphabetically by contractor name and assigned to a reviewer who reviews for duplicity, proper formatting, whether the use of Government facilities is required, and to ensure that the information in the proposal lines up with the electronic forms, among other things.</p> <p>In addition, NSSC service providers check proposal abstracts for duplicity, and report inconsistencies to the contracting officer. If a contractor submitted two proposals, the service providers check to see if they are similar.</p> <p>Summary: Control is partially implemented.</p>

Fraud Category 1 (continued)		
IG-11-010-R Recommended Control	Covered by Recovery Act Controls?	Comments
<p>2. PMO performs automated word search of (1) SBIR research proposals submitted to NASA, (2) research proposals funded by a NASA grant or contract, and (3) research proposals funded by another Federal agency under a grant or contract using the Electronic Handbook, NASA grant and contract databases, and the General Services Administration Federal Procurement Data Systems database. Automated word search produces a report of research proposals submitted to NASA that appear to duplicate proposals funded through another Federal grant or contract. PMO technical personnel compare research proposals and verify whether research proposal that firm submitted to NASA duplicated proposal that firm received funding for from another Federal grant or contract.</p> <p>(Reference Control 5 in Appendix D of Audit Report IG-11-010-R.)</p>	No	<p>PMO does not have unilateral authority to search across agencies. However, the search procedures they use include a two-pronged approach to search for duplicate proposals (see comment to #1 above).</p> <p>Summary: This control is partially implemented.</p>

Fraud Category 2: Contractors Submitted Questionable Research Product		
IG-11-010-R Recommended Control	Covered by Recovery Act Controls	Comments
<p>3. PMO performs automated word search of (1) SBIR research reports submitted to NASA that year, (2) research reports submitted to NASA under a grant or contract, and (3) research reports submitted to other Federal agencies under a grant or contract. PMO uses Electronic Handbook, NASA grant and contract databases, and the General Services Administration Federal Procurement Data Systems database. Automated word search produces a report of research reports submitted to NASA that appear to duplicate research reports submitted under another Federal grant or contract. SBIR Program enlists technical personnel to compare the research reports. Technical</p>	No	<p>The PMO does not have unilateral authority to search across agencies.</p> <p>However, the search procedures currently used include a 2-pronged approach to search for duplicate proposals:</p> <p>1. Software Approach: Once all of the proposals have been submitted, a software program is run on all of the proposed project description abstracts to check for duplicity. The software allows the controller to set the percentage of duplicity that they are looking for. It runs a check comparing each and every one of the abstracts against each other.</p>

Fraud Category 2 (continued)		
IG-11-010-R Recommended Control	Covered by Recovery Act Controls	Comments
<p>personnel verify whether research reports that firm submitted to NASA duplicated research reports that firm had submitted under another Federal grant or contract.</p> <p>(Reference Control 6 in Appendix D of Audit Report IG-11-010-R.)</p>		<p>2. Manual Approach: Once all of the proposals have been submitted, end processing begins, where the proposals are divided into alphabetical order by contractor name, assigned to a reviewer, and subsequently reviewed for duplicity, proper formatting, whether they require the use of government facilities, and to ensure that the information in the proposal lines up with the electronic forms, among other things.</p> <p>In addition, NSSC service providers check proposal abstracts for duplicity and report any inconsistencies to the contracting officer. If a contractor has submitted two proposals for funding, the service providers will check the abstract to see if they are similar.</p> <p>Summary: The control is partially implemented.</p>

Fraud Category 3: Firms and Principal Investigators Violated SBIR Program Requirements		
IG-11-010-R Recommended Control	Covered by Recovery Act Controls?	Comments
<p>4. For each Principal Investigator (PI) being considered for contract award:</p> <ul style="list-style-type: none"> PMO performs automated search of the Small Business Administration’s Tech-Net database to obtain a report of SBIR awards during a period; PMO uses an automated procedure to group the report of SBIR awards into SBIR awards, by PI; PMO uses an automated procedure to identify PIs that have more than 2 SBIR awards during the period; Contracting officer requests contractor to provide percentage of time that PI worked for firm during the period; 	<p>In Part</p>	<p>NSSC makes sure that there is an actual person employed as PI on the award and that PI is primarily employed by the Small Business Concern at the time of the award. For STTRs, PI can be employed by the Small Business Concern or the Research Institute. NSSC also checks that PI has not proposed more work hours than the amount of hours proposed for the work year.</p> <p>PMO stated that it is not yet possible to perform automated searches of the Small Business Administration’s Tech-Net database. There is currently no way to perform automated searches by PI because there is no unique identifier by PI across agencies. Further, NASA is not able in input their data into other agencies’ websites.</p>

Fraud Category 3 (continued)		
IG-11-010-R Recommended Control	Covered by Recovery Act Controls?	Comments
<ul style="list-style-type: none"> PMO obtains percentages of time PI spent on SBIR awards that other Federal agencies funded during the period; and PMO and technical officer determine whether percentages of time appear realistic for PI or indicate a potential abuse (mischarging, unreported use of subcontractor, or failure to perform research). PMO refers questionable firms, PI, and contracts to the OIG. (Reference Control 8 in Appendix D of Audit Report IG-11-010-R.) 		<p>Internally, when a proposal is received, the amount of work performed by PI is evaluated. PI is essentially the coordinator of the work effort.</p> <p>Virtual site visits implemented for Recovery Act awards were also used to verify the existence of PI. No issues were identified in this regard during the course of these site visits.</p> <p>Summary: The control is partially implemented.</p>

Fraud Category 4: Actual Effort and Costs Differed Materially from What Was Negotiated		
IG-11-010-R Recommended Control	Covered by Recovery Act Controls?	Comments
<p>5. Contracting officer should verify the firm’s labor rates with the Defense Contract Audit Agency (DCAA) for firms that were audited; or with other funding agencies for firms that DCAA has not audited</p> <p>(Reference Control 15 in Appendix D of Audit Report IG-11-010-R.)</p>	<p>No</p>	<p>According to NSSC there needs to be a historical basis for the proposed rates. If they don’t have rates approved by another agency, NSSC will review the basis for the proposed rates and make a determination as to whether the rates are reasonable.</p> <p>When the proposals are downloaded from Electronic Handbook, the service providers check Form C to determine if the contractor has listed a DCAA point of contact. The service providers will try to contact DCAA to verify whether the firm has approved/audited rates. Usually, small firms do not have audited/approved rates. The service providers try to verify the contractor’s proposed rates against rates already approved/audited by cognizant agency. As a last resort, the service providers may use the basis of the contractor’s rates. The contracting officers then review the information using their expertise to determine the rates fair and reasonable.</p> <p>Summary: The control is fully implemented.</p>

Fraud Category 4 (continued)		
IG-11-010-R Recommended Control	Covered by Recovery Act Controls?	Comments
6. Technical officer prepares final performance file on Phase 2 contractor. (Reference Control 17 in Appendix D of Audit Report IG-11-010-R.)	No	Contract files are updated throughout the life of the contract; however, final documentation is normally placed in the files by the service providers before it is moved to closeout. After the contracting officers receive the final invoice, they perform a final check to confirm all deliverables received and accepted. The contracting officer then approves and pays the invoice. The service providers then close the contract out but do not review the contract file once it has been closed. Summary: The control is fully implemented.

Fraud Category 5: Contractors Misused SBIR Funds		
IG-11-010-R Recommended Control	Area Covered by Recovery Act Controls?	Comments
7. PMO and technical officers assess indicators that firm will have excess cash on a NASA SBIR contract. Excess cash occurs when firm's actual expenses are materially less than proposed. PMO refers problematic firms to the OIG. Also, PMO assesses the following indicators: <ul style="list-style-type: none"> Firm demonstrated substandard performance. Substandard performance can indicate firm spent less on actual labor than it proposed. Firm recycled or plagiarized reports. Recycled reports can indicate that firm had to submit report from prior research as the deliverable because the firm did not spend contract funds on researcher labor. Firm submitted duplicate proposals. Duplicate proposals can indicate that firm did not use actual conduct research. PI has an unreasonable number of awards for period of contract. An unreasonable number of awards can indicate that PI did not actually perform research, firm used 	In Part	All SBIR/STTR awards are firm-fixed-price contracts, and all costs were previously negotiated. There were no instances of excess cash. Instances of substandard performance are reviewed at NSSC. If a contractor has had a report of substandard performance it could stop them from being awarded a contract. During the proposal search for duplicate work, the technical reviewers will assess whether any documentation appears to be recycled or plagiarized. Internally, the when a proposal is received, the amount of work performed by the PI is evaluated. Virtual site visits implemented for Recovery Act awards were also used to verify the legitimacy of the contractor's facility. Labor rates are reviewed by NSSC to determine reasonableness; however, they are not reevaluated when invoices are submitted. Summary: The control is partially implemented.

Fraud Category 5 (continued)		
IG-11-010-R Recommended Control	Area Covered by Recovery Act Controls?	Comments
<p>subcontractor to perform research, or firm recycled old research.</p> <ul style="list-style-type: none"> Firm lacks a legitimate business facility. Lack of a business facility can indicate firm did little, if any, actual research. Firm proposed higher labor rates than it actually paid. Higher proposed labor rates can indicate that firm knowingly proposed lower rates to provide firm excess cash. <p>(Reference Control 18 in Appendix D of IG-11-010-R.)</p>		
<p>8. PMO reviews indicators identified in Control No. 18 from IG-11-010-R against the firm’s cost-type contracts. For each SBIR contract identified at risk for fraud, waste, or abuse, the PMO will assess whether the firm may have applied overruns on a NASA SBIR contract to a cost-type contract. PMO refers problematic firms to the OIG. (Reference Control 20 in Appendix D of Audit Report IG-11-010-R.)</p>	No	<p>All SBIR/STTR awards are firm-fixed-price contracts, and all costs were previously negotiated. There were no instances of cost overruns.</p> <p>Summary: The control is partially implemented.</p>
<p>9. PMO reviews indicators in Control No. 18, above, against the firm’s contracts that have large indirect accounts. For each SBIR contract identified at risk for fraud, waste, or abuse, the SBIR PMO will assess whether the firm may have applied overruns on a NASA SBIR contract to indirect accounts. SBIR PMO refers problematic firms to the OIG. (Reference Control 21 in Appendix D of Audit Report IG-11-010-R.)</p>	No	<p>For Recovery Act contracts, contractors were required to certify quarterly that there was no fraud, waste or abuse. The Recovery Act contracts were all firm-fixed-price contracts and all costs were previously negotiated so there were no instances of cost overruns.</p> <p>The contracting officer did state that if there was an issue with costs, it would be flagged on their internal checklist by the service providers. The contracting officer would work with the contractor to determine why the costs were misallocated or misclassified. In cases of fraud, the contracting officer would work with the PMO to take a technical look at the work. After the technical review, the Inspector General’s office would be contacted as needed and, if another level of review is needed, they would contact the Acquisition Integrity Program Office.</p> <p>Summary: The control is partially implemented.</p>

Fraud Category 5 (continued)		
IG-11-010-R Recommended Control	Area Covered by Recovery Act Controls?	Comments
<p>10. Contracting officer requires SBIR firms to describe researchers in progress reports. Firms should identify personnel who worked on the SBIR research during the reporting period and describe their role. Contracting officer requires SBIR firms to provide the names, phone numbers, and email addresses of the PI, researchers, and subcontract researchers.</p> <p>(Reference Control 22 in Appendix D of Audit Report IG-11-010-R.)</p>	<p>Yes – Control No. 5</p>	<p>For Recovery Act contracts, key personnel are verified at the time of selection by the proposal evaluation team. NSSC compares the information from the proposal to the information on Form A. Also, the COTR/ technical monitor are required to complete a surveillance plan for each contract and provide quarterly reports to document various information on the work being performed.</p> <p>Summary: The control is fully implemented with the Recovery Act Controls.</p>
<p>11. Contracting officer requires SBIR firms to submit evidence with the firm’s invoice that firm has not billed NASA for nonexistent employees. Evidence could include employee addresses or email, written employment agreement, or other support.</p> <p>(Reference Control 23 in Appendix D of Audit Report IG-11-010-R.)</p>	<p>In Part</p>	<p>NSSC personnel stated that for Recovery Act contracts this is difficult to complete because normally the proposal only lists the key employees whereas the labor dollars include all people involved in the work. This is why there is follow up on the virtual site visit to determine that the people proposed to work on the contract are actually the people that are engaged in the work.</p> <p>Summary: The control is partially implemented.</p>
<p>12. PMO reviews indicators identified in Control No. 18 from report IG-11-010-R. For each SBIR contract identified at risk for fraud, waste, or abuse, the SBIR PMO will assess whether the firm may have charged unallowable costs to a NASA SBIR contract. PMO refers problematic firms to the OIG.</p> <p>(Reference Control 24 in Appendix D of Audit Report IG-11-010-R.)</p>	<p>Yes – Control No. 7</p>	<p>For Recovery Act contracts, contractors were required to certify quarterly that there was no fraud, waste and abuse. Unallowable costs on these Recovery Act contracts have not been a big issue, but there has been a problem with unallowable cost of money being proposed. The contracting officers are responsible checking for unallowable costs.</p> <p>Summary: The control is fully implemented.</p>
<p>13. PMO reviews indicators identified in Control No. 18 from report IG-11-010-R. For each SBIR contract identified at risk for fraud, waste, or abuse, the SBIR PMO will assess whether the firm may have used funds from a NASA SBIR contract to support a commercial contract. PMO refers problematic firms to the OIG.</p> <p>(Reference Control 25 in Appendix D of Audit Report IG-11-010-R.)</p>	<p>No</p>	<p>For Recovery Act contracts, contractors were required to certify quarterly that there was no fraud, waste and abuse. Also, this information would be contained in section 8 of the proposal which pertains to Company information and Facilities and lists any ongoing contracts the contractor has. However, there is essentially no way to verify this being done because NASA doesn’t perform individual audits of other SBIR contracts that a contractor may have received funding on, in addition to their current NASA SBIR contract.</p> <p>Summary: The control is not implemented.</p>

Fraud Category 5 (continued)		
IG-11-010-R Recommended Control	Area Covered by Recovery Act Controls?	Comments
<p>14. Technical officer compares actual labor rates reported on invoice with verified rates.</p> <p>(Reference Control 26 in Appendix D of Audit Report IG-11-010-R.)</p>	No	<p>All SBIR/STTR awards are firm-fixed-price contracts and all costs were previously negotiated. There was no requirement to break out costs by cost element on the contractor's invoices.</p> <p>Summary: Per IG-11-010-R, the control is partially implemented. NASA's response (Appendix E of IG-11-010-R) stated that NASA will explore the option to implement this control, but there is not a mechanism in place Government- wide to compare actual labor rates on an invoice with previously verified rates for firm-fixed-price contracts.</p>

MANAGEMENT COMMENTS

National Aeronautics and
Space Administration
Headquarters
Washington, DC 20546-0001



JAN 26 2012

Reply to Attn of:

Office of the Chief Financial Officer

TO: Assistant Inspector General for Audits

FROM: Chief Financial Officer
American Reinvestment and Recovery Act Senior Accountable Official

SUBJECT: OIG Draft Report, "NASA's Management of Small Business Innovative Research and Small Business Technology Transfer Contracts Funded by the Recovery Act" (Assignment No. A-11-005)

We appreciate the opportunity to review and provide comments on the Office of the Inspector General (OIG) draft report entitled, "NASA's Management of Small Business Innovative Research and Small Business Technology Transfer Contracts Funded by the Recovery Act" (Assignment No. A-11-005) dated December 20, 2011. In the draft report, the OIG makes five findings and five recommendations directed to NASA's Recovery Act Implementation Executive. NASA's response to these findings and recommendations, including projected completion dates, is outlined below.

NASA applied Recovery Act funds to the Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) programs, in proportion to the Agency's funding of Research Development (R&D) procurements and grants. Therefore, NASA allocated 2.8 percent of all external R&D Recovery Act spending to SBIR and STTR activities and awarded 41 contracts for Phase 1 activities and 29 contracts for Phase 2 activities, for a total investment of \$21.5 million. Additionally, NASA awarded multiple SBIR/STTR phase 3 contracts, to bring the total investment in small business innovation and technology development to \$24.4 million.

As your office highlighted, NASA adopted new controls for the Recovery Act funded SBIR/STTR awards. Since the inception of the Recovery Act awards, the Agency's plan was to pilot these controls to meet the terms and conditions of the Recovery Act and to apply lessons learned before incorporating them onto the rest of the program to further strengthen its administration. These controls were to supplement others that NASA adopted to address other issues, for example, as highlighted in the OIG audit report, "Review of NASA's Management of Its Small Business Innovative Research Program" (IG-11-010-R, January 12, 2011).

NASA is currently mid-process of incorporating the Recovery Act controls, where applicable, onto the greater program, including consideration of the three not fully implemented due to resource and time limitations. Of note, the SBIR/STTR program has already implemented the controls with respect to contracting officer technical representative (COTR) certification, training, and education. In January 2011, NASA issued new policy and guidelines to require all technical personnel to obtain COTR certification for all newly awarded Phase 2 and Phase 3 SBIR and STTR contracts. Since that time, the contracting officers at NSSC, in conjunction with the program management, have been monitoring Center COTR assignments and delegation. In compliance with this new policy, ten COTRs on non-Recovery Act funded contracts were removed from their duties, due to not completing training, and not meeting other requirements. NASA had made the decision to not remove any of the SBIR/STTR Recovery Act COTRs from their duties or to make their training current, based on that there had not been a requirement for certification nor training in NASA policy at the time the awards were made.

To continue to build on the effective execution of the SBIR/STTR contracts that utilized the controls that were applied to the Recovery Act awards, NASA generally concurs with the report's recommendations, with one exception noted below. Together with NASA's Assistant Administrator for Procurement and the SBIR/STTR Program Executive, the Recovery Act Implementation Executive will address these recommendations and further strengthen the SBIR/STTR program administration.

Recommendation 1: Revise program policy to require the application of the appropriate Recovery Act controls to improve the administration of the SBIR and STTR programs.

Management's Response: NASA concurs with this recommendation. The SBIR/STTR Program Executive and Program Manager will revise program policy to adopt, where appropriate, the controls that were piloted on the Recovery Act funded awards. Of the thirteen controls that NASA adopted, three were solely applicable to the implementation of the Recovery Act awards, hence will not be adopted to the program as a whole. Specifically, these controls are the ones related to recipient reporting of Recovery Act funded awards and notification of contractors of the requirements for these awards. At the time of this response, out of the remaining ten, all but two (surveillance plan, virtual site visits) have been adopted into the program. NASA will continue on the progress being made and will demonstrate the implementation of the controls into normal program operations, once the remaining two have been addressed.

Estimated Completion Date: June 2012

Recommendation 2: Provide the information from NSSC's bi-weekly late deliverables report to the SBIR Program Manager and Business Manager at key decision points in program implementation so they are aware of any problem contractors and can take actions as necessary.

Management's Response: NASA concurs with this recommendation. The contracting officers at the NSSC will provide the SBIR/STTR Program Manager and Business Manager

an analysis, at the time of new proposal selection, that includes the past performance issues of any of the proposers to factor into the evaluation.

Estimated Completion Date: June 2012

Recommendation 3: Evaluate the feasibility of utilizing the virtual site visit technology for other NASA awards where funds for on-site surveillance are limited.

Management's Response: NASA concurs with this recommendation. The Recovery Act Implementation Executive will work in conjunction with the Assistant Administrator of Procurement to perform an analysis of where this best practice may be applicable to other types of NASA awards, beyond the Recovery Act. The results of the analysis will be provided to the OIG.

Estimated Completion Date: June 2012

Recommendation 4: Issue written policy reminder to all contracting officers to follow existing policy on the appointment and removal of COTRs who fail to meet training, certification, and educational requirements.

Management's Response: NASA concurs with this recommendation. The Assistant Administrator for Procurement will remind contracting officers to follow existing policy on the appointment and removal of COTRs who fail to meet training, certification, and educational requirements.

Estimated Completion Date: March 2012

Recommendation 5: Strengthen controls to ensure contracting officers and evaluators maintain proper documentation in the SBIR contract files to justify and validate equipment purchases.

Management's Response: NASA partially concurs with this recommendation. NASA does not agree with the finding that the equipment costs are unallowable on the subject contracts, hence the basis for this recommendation. Additionally, the Agency would like to request that the recommendation be closed in light of the corrective actions that have already been taken to assure proper documentation in the SBIR/STTR files to justify all costs.

FAR 31.201-2 states that a cost is allowable when the cost complies with all of the following requirements: 1) reasonableness; 2) allocability; 3) generally accepted accounting principles and practices appropriate to the circumstances; 4) terms of the contract; and 5) any limitations set forth in this FAR Subpart 31.2. The OIG did not find the negotiated equipment costs to be unreasonable, unallocable to the associated SBIR contracts, not in compliance with generally accepted accounting principles, nor in violation FAR Subpart 31.2. Hence, the costs were allowable, but proper documentation did not exist in the

4

files that explained why the final awards had elements that were discouraged in the solicitation.

Numerous steps have been taken to resolve the documentation and process issues that resulted in an absence of a justification during the 2009 SBIR/STTR Program Solicitation. NASA has trained the contracting officers at the NSSC on effective proposal evaluation, accounting for costs and assuring the proper documentation of this evaluation in the contract files. The format for price negotiation memoranda was improved to assure that all elements of cost, including equipment costs, are appropriately considered. Lastly, the approval of a new technical evaluators' guide, used to support the proposal selection and award process, is in process and expected for implementation in the coming SBIR/STTR selection cycle.

Estimated Completion Date: Requested to be closed.

Again, we appreciate the opportunity to provide a written response to the subject draft audit report, as well as the courtesies extended to NASA, by the OIG, during the course of the audit. If any additional information regarding our response is required, please contact Julie A. Pollitt, the Recovery Act Implementation Executive, at (202) 358-1580.



Dr. Elizabeth M. Robinson

REPORT DISTRIBUTION

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