

Audit of NSF's Recovery Act Data Quality Review Process

National Science Foundation
Office of Inspector General

October 29, 2009

OIG 10-2-001



Results of Audit

Overall, NSF appears to be putting in place an adequate process to meet OMB requirements for limited data quality reviews of Recovery Act recipient quarterly reports. Specifically, NSF is establishing a process to perform limited reviews intended to identify material omissions and/or significant reporting errors on recipient quarterly reports and notify recipients, when necessary, of the need to make appropriate and timely changes. However, its data quality policies and procedures are still in draft form, and NSF is still working out some of the details of its process. We expect that NSF will continue to revise its processes based on lessons learned during this first reporting period. Consequently, we have provided some suggestions for NSF to consider as it refines this process including the need to consolidate, finalize, and obtain appropriate senior Agency management review and approvals of its policies and procedures.

NSF's Draft Plans for Data Quality Reviews Appear Adequate

Recovery Act Requires Quarterly Reporting

Section 1512 of the Recovery Act requires recipients of Recovery Act funds to submit a report to FederalReporting.gov not later than 10 days after the end of each calendar quarter. Recipients are required to include in these reports:

- The total amount of Recovery funds received;
- The amount of Recovery funds expended or obligated to projects or activities; and
- A detailed list of all projects or activities for which recovery funds were expended or obligated; and
- Estimates of the number of jobs created and retained by those projects or activities.

Federal Agency Data Quality Reviews Required

The Office of Management and Budget (OMB), provided guidance¹ to both Federal agencies and Recovery Act recipients to ensure reporting requirements are effectively implemented. This guidance not only outlines specific data elements that awardees are required to report on and timelines to do so, but also requires Federal agencies to develop internal policies and procedures for limited quality reviews of reported Recovery Act data. These reviews are intended to

¹ OMB Memorandum for the Heads of Departments and Agencies, M-09-21, "Implementing Guidance for the Reports on Use of Funds Pursuant to the American Recovery and Reinvestment Act of 2009," June 22, 2009.

emphasize the avoidance of two key data errors: material omissions and significant reporting errors. Federal agencies must also notify recipients of the need to make appropriate and timely changes to their data. The OMB Memorandum further encourages Federal agencies to use these reports to:

- help assess compliance with the terms and conditions of individual award agreements;
- further assess risks; and
- determine, if necessary, when to release remaining funds.

NSF Drafts Initial Process for Limited Data Quality Reviews

NSF appears to be meeting the requirements in OMB Memorandum M-09-21 by establishing a process to perform limited data quality reviews intended to identify material omissions and/or significant reporting errors on recipient's Recovery Act quarterly reports and notify the recipients of the need to make appropriate and timely changes.

Although still in draft form, NSF has developed eleven specific documents that together comprise NSF's intended process for carrying out data quality reviews of recipient reports under the Recovery Act.² Some of the key features of this process are:

- **Accountability:** NSF has outlined specific roles and responsibilities for NSF's various Directorates and Divisions and created a dedicated team to ensure implementation of the data quality policies and procedures. NSF will also update the ARRA Steering Committee on a weekly basis of the overall results of the data quality review process.
- **Automated Data Checks:** NSF is developing an automated system to check 31 of the 99 Recovery Act reporting data elements against existing NSF databases. In addition, NSF is planning to sample a portion of its Recovery Act awards to conduct further testing to identify omissions and/or reporting errors.
- **Avoidance of material omissions and significant reporting errors:** NSF has defined material omissions and significant errors through the lens of misleading the public and identified three specific data elements for immediate screening.
- **Non-Reporting:** In addition to conducting outreach to recipients and sending out reminder emails to Sponsored Research Offices to help ensure timely reporting, NSF will employ an automated process to identify

² NSF pointed us to eleven different source documents for its policies and procedures for performing limited data quality reviews. Many of these documents are still in draft form, but taken together they provide a picture of how NSF is addressing this important requirement.

non-reporting recipients.

- **Systemic or Chronic Problems:** Through use of a contractor, NSF is developing a tool to track recipient reporting errors and corrections made over time. In addition, NSF will use this contractor to assess trends in reporting compliance.
- **Awardee Compliance:** NSF also plans to use the results from the data quality review process to assess awardee compliance with the award terms and conditions and to implement additional corrective actions if needed. These actions may include the imposition of additional award terms or the reduction or termination of the award. NSF also plans to incorporate findings into NSF's existing risk assessment process.

While this process appears to address the primary needs for such reviews, it is too early to determine its full effectiveness. In addition, we expect that NSF will continue to revise its processes based on lessons learned during this first reporting period. Consequently, we are making no formal recommendations to NSF at this time. Alternatively, we do have suggestions for NSF to consider as it continues to refine and finalize its policies and procedures. These suggestions are described separately below. Finally, we may conduct additional work to assess the full adequacy and effectiveness of this process in the future.

- **Consolidate and Finalize Draft Quality Review Program Policies and Procedures:** After an initial period of performing and testing its data quality review process, NSF should finalize and consolidate its various procedural documents into an integrated and cohesive Data Quality Review Program policy and procedures document. As part of that process, because NSF's data quality review process is a major control for ensuring Recovery Act funds are spent timely, prudently, and effectively, it is important for NSF's ARRA Steering Committee and the Senior Accountability Official, who are responsible for achieving NSF's Recovery Act goals, ensuring accountability, and mitigating risks, to review and approve NSF's data quality review policies and procedures. This final policy should also formally document key accountability roles such as those of the NSF data quality reporting team.
- **Chronic Reporting Problems:** NSF should establish a definition for "chronic" reporting problems and the actions NSF will take for specific instances of noncompliance with reporting.³ NSF should also consider what preventive actions it may take to ensure errors identified in one

³ It is especially important to define these actions as the recipient reporting requirement found in Section 1512 of the Recovery Act is also a term and condition of each NSF ARRA award.

quarter are fixed in the next quarterly report.⁴ NSF's written notification to recipients regarding the need to make appropriate and timely changes to quarterly reports should also inform recipients of the consequences of repeated reporting problems.

- **Continued Risk Assessment:** Because of the statutory requirement for recipient reporting that is also a term and condition of every Recovery Act award, NSF should continue to develop its plans to use ARRA recipient reporting as part of NSF's continuing risk assessments for its ongoing award monitoring program.
- **Record Retention:** As NSF's process for performing limited data quality reviews of recipient reports will generate various documents evidencing such reviews, NSF should fully develop and document its retention policies for all current and future data quality records, such as emails to institutions.
- **Contingency Planning:** At the time of our audit, NSF and its contractor had not finalized the automated system or tracking tool, and the NSF contract did not include timeframes for when the contractor needed to complete these and other data quality deliverables. In addition, NSF cannot yet ensure that its automated system and controls will, in fact, function as intended. We are also concerned that NSF may not have the resources available to carry out its contingency plan, particularly to manually check every Recovery Act award's jobs created numbers, if the automated system should fail. Consequently, we suggest that NSF formally document a contingency plan in the event that the expected automated process does not work as intended or fails due to unforeseen technical difficulties either this reporting cycle or in the future.

Agency Response and OIG Comments

NSF reviewed a draft of this report and noted that it has developed a multi-stage recipient reporting process and successfully conducted reviews for significant errors and material omissions from October 22 through October 29.

We have attached NSF's response to this report in its entirety as an appendix.

⁴ While NSF is ensuring that three significant reporting errors, if found, are corrected in the current quarterly reports, the policies we reviewed did not indicate that NSF will be conducting preventive follow-up in the next quarter for the other errors identified that they believe are less significant.

OIG Contact and Staff Acknowledgements

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In addition to Ms. Scott, Kristen Cutforth, Elizabeth Goebels and Laura Skopec made key contributions to this report.

Appendix A: Background, Objective, Scope, and Methodology

Background

The National Science Foundation (NSF) received \$3 billion under the Recovery Act for investments in basic research, education, and research infrastructure. According to NSF, this investment will have an immediate impact on research investigators, post-docs, graduate and undergraduate students, and educators throughout the nation.

However, these significant funds come with additional transparency, accountability, and reporting requirements. The Recovery Act requires recipients to submit quarterly reports to a central reporting website. These reports will contain a wealth of information taxpayers may be interested in, including the total amount of recovery funds received, a description of the project or activity, and an estimation of the number of jobs created and retained by the project. These new reporting requirements are intended to promote transparency, which will help drive accountability for the timely, prudent, and effective spending of Recovery Act dollars.

Objective, Scope, and Methodology

Because of inherent challenges associated with these new reporting requirements, the Recovery Accountability and Transparency Board (RATB), which is responsible for coordinating and conducting oversight of Federal Recovery Act spending, has requested that each Inspector General of an agency receiving Recovery Act funds perform an audit, according to the RATB's specifications, of their agency's plans for ensuring data quality of Recovery Act quarterly reports. The objective of this audit, as requested by the RATB, was to determine whether NSF has established a process to perform limited data quality reviews intended to identify material omissions and/or significant reporting errors on recipient's Recovery Act quarterly reports and notify the recipients of the need to make appropriate and timely changes.

To accomplish this objective, we reviewed NSF's policies, procedures, and processes as of October 7, 2009, for monitoring recipient reporting of Recovery funds for the quarter ending September 30, 2009.⁵ We also reviewed relevant Office of Management and Budget (OMB) guidance⁶ and interviewed NSF officials. However, due to the timing of this audit, we could not confirm that NSF's automated system and tracking tool would be fully functional in time for

⁵ At the time of our audit, NSF's data quality policies and procedures were in draft form and, consequently, subject to change.

⁶ OMB Memorandum for the Heads of Departments and Agencies, M-09-21, "Implementing Guidance for the Reports on Use of Funds Pursuant to the American Recovery and Reinvestment Act of 2009," June 22, 2009.

reviews of the first quarter reports, and did not test NSF's information system controls to ensure automated data quality checks will in fact function as intended. Further, while OMB guidance requires Federal agencies to address reporting problems of both Recovery Act prime recipients and sub-recipients, this audit focused on whether NSF has a process in place to identify material omissions and significant reporting errors for prime recipients.

We conducted this performance audit between September 2009 and October 2009 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 objective.

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OFFICE OF THE
DIRECTOR

October 28, 2009

MEMORANDUM

To: Deborah H. Cureton
Associate Inspector General for Audit

From: Cora B. Marrett
Acting Deputy Director, National Science Foundation

Subject: Response to the Office of Inspector General Draft Report "Audit of NSF's
Recovery Act Data Quality Review Process"

Thank you for the opportunity to comment on the draft audit report regarding the National Science Foundation's (NSF) American Recovery and Reinvestment Act (ARRA) of 2009 data quality review process. We are pleased that your audit found that NSF "appears to be putting in place an adequate process" to meet OMB requirements for data quality reviews. The Foundation has implemented an overall framework for ARRA investments that provides sound managerial stewardship and has established a comprehensive process to perform data quality reviews. This reflects the hard work by our dedicated staff in developing and implementing plans and protocols for our reviews.

We have developed a multi-stage recipient reporting process throughout the quarter that: (1) reviews for material omissions and/or significant errors, (2) checks for compliance through data matches, (3) samples descriptive fields, and (4) includes a Federal Financial Report (FFR) expenditure check. We successfully conducted reviews for material omissions and/or significant errors during day 22 through 29 as required.

During the audit process, NSF worked very closely with the Office of Inspector General (OIG) to provide necessary and timely information. We appreciate the suggestions your office has provided as we continue to improve the implementation of our data quality reviews. We look forward to continuing the professional and cooperative relationship that our offices have established

NSF was honored by the recognition of the Foundation's strong role in reinvesting in the American economy with its inclusion in ARRA.

Cora B. Marrett
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