



National Science Foundation • Office of Inspector General
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MEMORANDUM

DATE: March 16, 2012

TO: Dr. Cora B. Marrett
Deputy Director, National Science Foundation

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

SUBJECT: *Audit of National Science Foundation's Independent Research and Development Program, Report No. 12-2-008*

Attached please find the final report of our audit of NSF's Independent Research and Development (IR/D) program. The report contains one finding on the need for NSF to strengthen management controls over the IR/D program.

In accordance with Office of Management and Budget Circular No. A-50, *Audit Followup*, please provide a written corrective action plan within 60 days to address the report recommendations. This corrective action plan should detail specific actions and milestone dates.

We appreciate the courtesies and assistance provided by the NSF staff during the audit. If you have any questions, please contact Marie Maguire, Senior Audit Manager, at (703) 292-5009.

Attachment

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Audit of NSF's Independent Research and Development Program

**National Science Foundation
Office of Inspector General**

**March 16, 2012
OIG 12-2-008**



Introduction

The National Science Foundation (NSF) is an independent federal agency whose mission is “to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense.” To support this mission, NSF funds approximately 20 percent of all federally-supported basic research conducted at the nation’s colleges and universities, primarily through grants and cooperative agreements. To accomplish this mission, NSF seeks to maintain a world-class staff of scientists, engineers, and educators who bring current knowledge, insight, and cutting-edge perspectives to the scientific and engineering research and education funded by NSF.

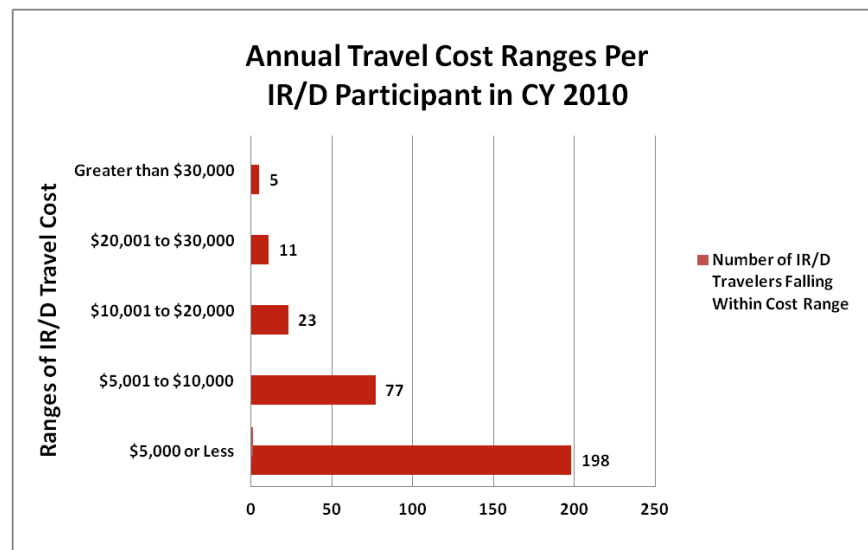
To maintain its scientific workforce at the frontiers of discovery, NSF relies on authority provided in the National Science Foundation Act of 1950, which gives the NSF Director the authority to appoint or detail on a temporary basis, scientists, engineers, and other technical and professional personnel on a leave of absence from academic, industrial, or research institutions. With this authority, NSF supplements its permanent, career employees with a variety of non-permanent staff, including temporary and limited term appointments, as well as two “rotating” programs which allow staff to maintain their relationships with their home institutions. These rotating programs are (1) the Visiting Scientists, Engineers, and Educators (VSEE) program, which appoints staff as salaried Federal employees for up to two years while on leave from their home institutions, and (2) the Intergovernmental Personnel Act (IPA) of 1970 mobility program, which allows staff to be detailed to NSF while remaining on the rolls of their home institutions. In the latter case, IPA agreements are signed between NSF, the home institution, and the employee; and payment for salary and benefits is made through a grant from NSF to the home institution.

NSF’s Independent Research/Development (IR/D) Program

To assist in recruiting scientists actively involved in research, NSF's Independent Research/Development (IR/D) Program permits employees and non-permanent staff to maintain their professional competencies and remain actively involved with their professional research while working at NSF. IR/D activities should relate to accomplishing NSF's goals and are considered to be official duties.

IR/D participants must have a written plan, which is first approved by the supervisor, of the proposed activities and estimates of working days away from NSF in a year and NSF costs, including travel. Of 250 working days in a year, NSF policy allows IR/D participants to spend up to 50 (20 percent) days a year on IR/D activities. The Office of Information Resource Management (OIRM) reviews the plan to ensure it meets the administrative requirements and then forwards it to the Office of General Counsel (OGC) to review for Conflict of Interest issues and to brief the employee/IPA on any legal issues involved with the individual's IR/D activities.

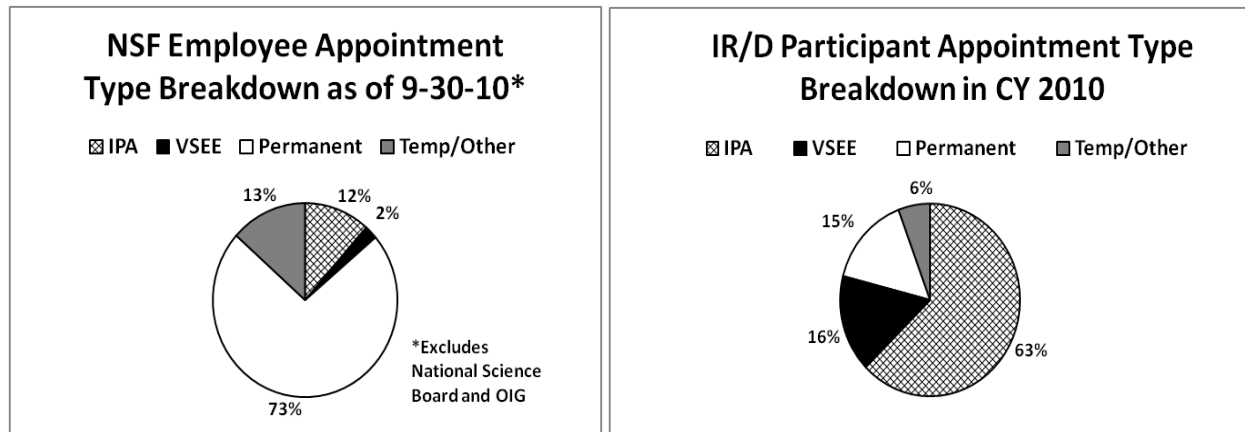
From 2004 to January 2011, the number of IR/D participants increased from 183 to 277. The 277 IR/D participants in January 2011 represented about 18 percent of NSF's total workforce of approximately 1,500 staff. We determined that in calendar year (CY) 2010, 314¹ NSF staff completed over 1,900 expense reports in which they indicated "IR/D" was the primary purpose of their trip. Their total charges for IR/D trips on these expense reports was approximately \$1.8 million, and the range per traveler varied from approximately \$225 to \$45,000.²



Within NSF's workforce, most of the IR/D travelers are IPAs, who typically travel to and from their home institution to conduct research. In CY 2010, IPAs and VSEEs took 1,740 (90 percent) of the 1,928 IR/D primary trips.

¹ While there were 277 IR/D participants as of January 2011, there were 314 total NSF staff persons who took IR/D trips during CY 2010, which includes participants who left NSF before January 2011.

² Travel expense amounts are based on expense reports for calendar year 2010 that had been completed by travelers at the time of our review; however we did not verify all reports. The amounts come from travelers' self-reporting "IR/D Home" or "IR/D Other" as the trip purpose and do not include any IR/D trips that were not coded as such. Furthermore, if trips combined IR/D travel and other NSF work and the traveler coded the trip as "IR/D", then the total cost of the trip was included in our IR/D travel amount.



Permanent employees and VSEEs spending time away from NSF on approved IR/D activities record their time as Official Business hours in NSF's current time and attendance system. Their IR/D travel expenses are charged to the Agency Operations and Award Management (AOAM) appropriation in the NSF's Financial Accounting System. IPAs, however, are not required to track their time. IPA's travel expenses are charged to the program funds of their division. All IR/D participants use the FedTraveler system to plan, book, track, obtain approval of, and request reimbursement for travel. NSF employees and VSEEs are reimbursed for all allowable travel expenses in accordance with the Federal Travel Regulation (FTR) for temporary duty travel. IPAs who have relocated to NSF receive reimbursement for all allowable expenses in accordance with FTR, while IPAs who have not relocated receive reimbursement of transportation expenses and limited per diem.

In response to an OIG Office of Investigations' September 2010 Management Implication Report on a review of IR/D travel in Fiscal Year 2007, which identified internal control deficiencies associated with the program, NSF formed an IR/D Task Group to develop and implement changes to strengthen the oversight and accountability of the IR/D program. The NSF Task Group included representatives from the science directorates, OIRM, OGC, and the union.

The IR/D Task Group issued a final report on May 6, 2011 which contained several recommendations on program scope, oversight mechanisms, automation, and training and guidance. A significant recommendation from the Task Group's report is that NSF should include travel time in the calculation of IR/D days and the 50-day limit. Other recommendations, which will improve management oversight of the program, included: creating new accounting codes in the Financial Accounting System to compile and track IR/D-related expenditures; configuring the new time and attendance system, planned for release during 2012, to account for normal workday hours spent on IR/D activities for all NSF staff except IPAs; automating the IR/D plan application and approval process; developing a detailed procedural and informational guide to the IR/D program; and providing periodic training sessions for IR/D participants. The recommendations from the IR/D Task Group's report are included in Appendix C.

Results of Audit

Based on our audit we determined that in CY 2010 NSF lacked sufficient oversight controls to properly monitor the IR/D program and had not fully assessed its impact on travel costs, staff time, and NSF's workload. In CY 2010, senior NSF managers interviewed also had limited insight into the program and the related time and IR/D travel costs at the agency level. Further, NSF had not identified the IR/D program's goals or quantified its outcomes. While NSF, in response to the OIG's September 2010 Management Implication Report and the recommendations of its own IR/D Task Force, has begun taking actions to improve controls over the IR/D program, our review identified additional areas for improvement. Among other things, NSF could more efficiently monitor IR/D costs with an agency-wide process to accumulate and track information from the different NSF's systems which contain the IR/D plans, time tracking, financial and travel costs and activity. Agency management would also be able to ensure that IR/D participants complied with program requirements if NSF implemented a management control to proactively track and monitor IR/D time and travel costs. A proactive alert will be especially critical when NSF implements the change in policy to include travel days in the calculation of IR/D days, increasing the risk of exceeding the 50-day limit.

NSF Should Strengthen Management Controls over the IR/D Program

In CY 2010, senior NSF management had limited insight into the program's travel and time costs and lacked sufficient management controls to monitor the program. NSF had separate systems, which each recorded limited aspects of IR/D activity, but no agency-wide process existed to accumulate, track, and monitor this information. For example, NSF management could not determine total annual travel costs for the IR/D program or identify if individual travelers exceeded the 50-day limit. We obtained FedTraveler information for all NSF travel and, after sorting and searching the information, estimated CY 2010 travel costs for IR/D. The IR/D Task Group's 2011 report recommended system enhancements to automate IR/D plans and begin tracking time and costs after the fact. The Task Group report also recommended an annual accounting of the utilization of the IR/D program for the prior fiscal year. This annual accounting will enable the agency, as well as individual divisions, directorates, and offices, to assess how the program is being used and to inform future planning.

The recommendations in the Task Group report do not address the need to identify goals for and determine the outcomes of the IR/D program. Agency management should develop program goals and establish performance targets to measure progress in achieving those goals. In addition, the agency should periodically evaluate program outcomes and determine if changes are needed based on results and budgetary challenges.

The Task Group report also does not address the need for ensuring that budgets associated with IR/D plans and time limitations associated with the IR/D program are adhered to. We found that some divisions have begun to track IR/D costs on a limited basis, but monitoring of IR/D travel was not done consistently agency-wide. A few IR/D travelers and supervisors informed us that they now track travel days and costs within their division. For example, one division developed a spreadsheet to track the time IR/D participants have spent on IR/D activity for each individual trip. The division uses data from the FedTraveler system and tracks IR/D days used per trip and cumulative days, amount expended, and details of activities. Similarly, another division developed a tracking spreadsheet and uses FedTraveler expense report data to track travel date, purpose, and actual expenditure for all travel by division staff. Even though a few divisions have begun to monitor IR/D time and costs, the agency would be better positioned to monitor the program and ensure compliance with associated budgets and time limitations if it developed a process to monitor IR/D time and costs agency-wide on a real-time basis and provide proactive alerts when the number of travel days or costs is approaching approved limits.

NSF did not have a clear policy on how IR/D days were to be calculated with respect to the 50-day limit. The NSF Personnel Manual, Chapter III, subchapter 700, dated February 6, 2003, states that “generally a participant’s IR/D activities may not exceed 50 days per year.” While this policy does not specifically state if travel days are to be included or excluded from the 50 day limit, NSF officials had generally excluded travel days. Section 9 of the IR/D plan, NSF Form 1309, updated November 2004, states “no more than 50 days per calendar year can be approved.” The IR/D Task Group’s report recommends that travel occurring during normal business hours is to be included as part of the 50-days, but the report does not provide detailed instructions to clarify how to calculate IR/D work and travel days. NSF also did not have detailed instructions on how to track IR/D time for IPAs and how to record in the FedTraveler system trips which include both IR/D and other NSF travel, such as outreach or a conference.

In addition, although the IR/D Task Group report notes the need for training of IR/D participants on policies and procedures, the Task Group does not recommend that this training be mandatory for participants and does not address the training needs for supervisors and approving officials. Mandatory training for IR/D participants, supervisors, and approving officials would help ensure that policies are clearly understood and consistently followed throughout the agency. Many IR/D participants we spoke with stated that they had received only limited guidance on how to complete their plans or record travel.

Without an agency-wide tracking process and clear policies and procedures, NSF management did not have the information it needed to accurately monitor IR/D time and travel costs in CY 2010. As a result, we identified 9 staff, or 3 percent of the 314 IR/D travelers, who spent between 51 and 67 work days on IR/D in CY 2010. These 9 individuals spent approximately \$15,000 on IR/D travel that began after incurring 50 work days on IR/D. Because NSF’s proposed policy will now include travel time, there is a risk that more IR/D participants may spend more than 50 IR/D days. If the newly

proposed policy to include travel time had been in effect in CY 2010, 14 participants, or 4 percent, were away from NSF between 51 and 71 work days on IR/D³.

In addition, the amount of IR/D activity varied between IPAs, VSEEs, and permanent employees. In CY 2010, 8 of the 9 IR/D participants with more than 50 IR/D days were IPAs and the remaining one was a VSEE. Six of these 9 participants took 20 or more IR/D primary trips, and one of these 9 took 40 trips to the participant's home institution in 2010. Typically, IR/D travel for IPAs and VSEEs included weekend trips. More than 40 percent of all primary IR/D travel was for single weekend trips, which usually included IPAs and VSEEs leaving NSF on a Wednesday, Thursday, or Friday for their home institution and returning to Arlington, Virginia on a Sunday, Monday, or Tuesday. Of the over 1,900 expense reports in 2010 which indicated IR/D was the primary purpose of the trip, over half of the trips were for 3 working days or less, while 18 percent of the trips were for at least 7 working days. We did not review the details of each trip to determine how many days were spent on IR/D and how many were for another purpose, such as leave, telework, or other NSF work. The frequency and length of the trips, which include travel time, leaves limited amount of continuous time to focus on the research during each trip.

The range of IR/D travel costs varied considerably. In CY 2010, 198 (63 percent) of 314 IR/D participants with IR/D primary trips spent \$5,000 or less on travel, while 39 (12 percent) of participants spent greater than \$10,000. For example, one IPA submitted expense reports for approximately \$45,000 for IR/D primary trips. This IPA took 16 primary IR/D trips directly to the IPA's home institution, at an average cost of almost \$1,130 per trip or approximately \$18,000 total. This IPA also made 12 trips combining travel to both the home institution and other locations for a cost of approximately \$27,000. Another IPA took 39 primary IR/D trips to the IPA's home institution, most often leaving Friday and returning Sunday or Monday at an average cost of about \$850 per trip or approximately \$33,000 total. This IPA also traveled to the home institution on three other occasions, typically on the way to or returning from a non-IR/D conference or activity. A third IPA also took 39 primary IR/D trips to the IPA's home institution, usually leaving Thursday and returning the following Monday, at an average cost of approximately \$475 per trip or nearly \$18,600. This IPA also traveled to the home institution on at least four other occasions, typically on the way to or returning from a non-IR/D conference or activity. Finally, one IPA took 29 primary IR/D trips to the IPA's home institution in CY 2010 at an average cost of approximately \$1,137 per trip or nearly \$33,000 despite being at NSF for only 7 full months during CY 2010. The IPA most often left on Thursday or Friday and returned the following Monday or Tuesday. Based on the frequency of the IPA's travel, this further illustrates limited uninterrupted time to spend on research.

IR/D travelers we interviewed stated that they were aware of the need to balance their NSF workload with IR/D research. Many told us that they frequently worked longer

³ The OIG excluded travel days (or a portion thereof) where the IR/D participant left after (during) working day and returned to Arlington in time for work.

hours and occasionally combined telework days with IR/D days when at their home institution. Nevertheless, time spent on IR/D activities, especially time beyond their plan or above the 50-day limit, reduces time available to perform and complete NSF responsibilities and workload, thereby affecting the productivity of their division or office. The current limit of 50 days reduces staff availability for NSF work by 20 percent of the 250 workdays in a year.

NSF's Personnel Manual does not provide guidance on any limits of travel expenses for IR/D travel, and as noted previously the amount spent per person can vary considerably, with 12 percent of the participants spending over \$10,000 on IR/D related trips in CY 2010. The Task Group's May 2011 report does not recommend establishing any limits for IR/D travel. In light of Executive Order 13589, *Promoting Efficient Spending*, dated November 9, 2011, which requires Federal agencies to establish a plan for reducing combined administrative costs, including travel, by not less than 20 percent below Fiscal Year 2010 levels in Fiscal Year 2013, the agency should consider establishing a maximum dollar level for individual IR/D travel costs. If a manager wishes to approve a plan with costs that exceed the cap, the request would need to be justified and approved at a higher management level. The agency should also consider other ways to reduce IR/D costs, including having participants make fewer trips of longer duration or combine NSF telework with IR/D travel.

NSF senior management had not identified overall program goals, determined outcomes, or regularly collected the results of participants' IR/D research. IR/D participants are required to indicate on their IR/D plans how they will report to NSF staff regarding IR/D activities. The nine individuals we interviewed did not prepare a written report of their research activities for their supervisor. Rather, they orally informed their supervisors of their IR/D research results. Some participants indicated that they circulated articles they read to colleagues, but none prepared a written report on the results of their research. The Task Group report recommends that IR/D participants should provide annually a short report which includes a brief description of the results of the activities and any resulting research outputs. Obtaining this information would provide NSF management useful information on the outcomes or benefits of this program.

The Task Group report states that NSF could use data from the annual accounting to evaluate the program and inform future planning. IR/D participants and supervisors we interviewed generally believed that the IR/D program is essential to recruit individuals who are actively involved in current scientific research, with almost all stating that they would not have accepted the NSF position if the program did not exist. In light of Executive Order 13589 and the impact of IR/D on workload and budgets, NSF needs to determine the overall goals and benefits of the program to provide information to NSF management to determine changes needed to promote more efficient and equitable spending of government funds and to accomplish NSF's mission.

Recommendations

We recommend that the NSF Director:

1. Take appropriate action to strengthen management controls over the IR/D program. Such actions could include:
 - A) Identifying goals and outcomes for the program and tracking data to determine if the goals are met.
 - B) Developing and implementing an agency-wide process to track planned and actual IR/D time and expenses for each IR/D participant on a real-time basis. IR/D participants and their supervisors should review this information on a continual basis to prevent time or costs from exceeding the budgeted amounts in the plan.
 - C) Implementing the IR/D Task Group recommendations in the May 6, 2011 report, but also requiring that training be mandatory for current and future IR/D participants and supervisors.
 - D) Providing guidance on how to calculate IR/D work and travel days, as well as how to record trips which include both IR/D and other travel.
2. Reevaluate the existing IR/D policy and practices to consider:
 - A) If the 50 day limit for IR/D should be reduced, balancing NSF's workload needs and the benefits of active involvement in research.
 - B) Ways to reduce IR/D travel costs to meet the requirements of Executive Order 13589. For example, NSF management could establish an annual maximum dollar level for individual IR/D travel costs, requiring justification and approval for travel costs that are planned to exceed that level, and encourage IR/D participants to take fewer trips of longer duration or to combine NSF telework with IR/D travel.

Summary of Agency Response and OIG Comments

NSF concurred with the OIG's recommendations. NSF agreed that additional steps are needed to strengthen management controls over the IR/D program. NSF also agreed to reevaluate its existing policy on the 50 day limit for IR/D activities and to explore ways to reduce IR/D travel costs to meet the requirements of Executive Order 13589.

We consider management's comments and planned actions to be responsive to our recommendations. We look forward to receiving the Corrective Action Plan and working with NSF officials to confirm implementation.

We have included NSF's response to this report in its entirety as Appendix A.

OIG Contact and Staff Acknowledgements

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In addition to Ms. Maguire, Susan Carnohan, Wendell Reid, Emily Franko, and Jessica Martin made key contributions to this report.

Appendix A: Agency Response

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

March 8, 2012



OFFICE OF THE
DEPUTY DIRECTOR

MEMORANDUM

TO: Ms. Allison C. Lerner
Inspector General

FROM: Dr. Cora B. Marrett *CBMarrett*
Deputy Director

SUBJECT: NSF Response to the OIG Draft for Formal Comment on the Audit of NSF's
Independent Research/Development (IR/D) Program

Below is the Foundation's response to the OIG Draft for Formal Comment on the Audit of NSF's Independent Research/Development (IR/D) Program. This response was developed in close consultation OIRM, BFA, and the newly established IR/D Council. Please let me know if you have any questions.

NSF Response:

The Independent Research/Development (IR/D) program plays a key role in helping NSF staff remain at the forefront of scientific and engineering research and education, which is necessary for achieving the Foundation's strategic goals of Transform the Frontiers and Innovate for Society. NSF welcomes the recommendations contained in this audit. NSF views these recommendations as a valuable contribution to its on-going efforts to strengthen the overall management of the IR/D program. In response to a September 2010 Management Implication Report on the IR/D program, NSF initiated significant enhancements to the management of the IR/D program. NSF agrees that additional steps are needed to strengthen the management controls over the IR/D program. Such steps, taken as feasible within an environment of constrained resources, will include improved record keeping, program guidance, and training. NSF will also reevaluate the rationale for the 50 day limit on IR/D activities and explore ways to reduce IR/D travel cost to meet the requirements of Executive Order 13589.

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Appendix B: Objective, Scope, and Methodology

The objective of this performance audit was to evaluate the effectiveness of NSF's oversight of the IR/D program and our scope was IR/D activity performed in calendar year CY 2010. To establish a framework for assessing the IR/D program, we reviewed relevant criteria that provided a perspective of the IR/D program. We reviewed NSF policies and procedures, including relevant portions of NSF's Personnel Manual, Financial Management Policy Manual, Bulletins, and Conflicts of Interests and Standards of Ethical Conduct Manual. To identify additional criteria for our audit, we reviewed the September 2010 NSF-OIG Management Implication Report on IR/D travel, general internal control standards, and other NSF-related background documents. To further our understanding and develop a possible benchmark for the IR/D program, we contacted other Federal agencies that had a similar mission of scientific research and that also tended to employ IPAs on their staff to determine if they had a similar program. The agencies that responded were the Department of Energy, National Institutes of Health, U.S. Army Research Laboratory, and Defense Advanced Research Project Agency. None of these agencies had a similar program.

We documented processes and identified relevant internal controls over the IR/D program. In addition to our review of NSF policies and procedures, we interviewed NSF-OIG Investigations' staff that performed the work resulting in the September 2010 OIG Management Implications report. We also met with the IR/D Task Group, attended the two agency-wide IR/D forums organized by the Task Group, and reviewed its May 2011 report⁴. We judgmentally selected one IPA, VSEE, and employee IR/D participant to document how NSF divisions and systems compiled and tracked their IR/D activities. As part of our transaction review, we interviewed three Division Directors from the science Directorates as well as staff in the Office of Information and Resource Management and the Division of Financial Management to gain an understanding of their procedures and roles in the IR/D program. We obtained a data download in June 2011 of CY 2010 travel transactions from the FedTraveler system and performed data mining to identify IR/D activity for further review. To calculate the IR/D travel days, we filtered our FedTraveler download to identify and analyze IR/D travel expense reports and itineraries, when available, and we reviewed IR/D plans for selected IR/D participants. We interviewed a judgmental sample of nine IR/D participants based on their 2010 travel records and type of position to get their perspective on the IR/D program and to discuss their IR/D plan and travel.

We reviewed NSF's compliance with its internal guidance for the IR/D program. We did not identify any laws and regulations directly affecting the IR/D program. We did not test for compliance with the Federal Travel Regulation (FTR). However, during the course of our audit, we identified some instances of travelers not submitting their expense reports within 5 working days after the trip is completed as required by FTR.

⁴ The OIG's Office of Investigations provided comments to the IR/D Task Group on their report.

Through interviews with NSF staff and review of documentation, we also obtained an understanding of the management controls over the IR/D program. We identified an internal control deficiency on the lack of management controls to monitor the program, which we discuss in this report. We did not identify any instances of fraud or illegal acts. Except for some examples of high travel costs and days spent over the 50 day limit, we did not identify any abuse.

During the course of this audit, the auditors relied on information and data received from NSF in electronic format that had been entered into a computer system or that resulted from computer processing. We tested the reliability of NSF's computer-processed data by corroborating the results with NSF officials independent of the computer system. Because FedTraveler records only include expense reports that were submitted and approved at the time of our download, they do not include any 2010 IR/D travel costs for which expense reports had not yet been submitted. In addition, because most expense report data is self-reported by the traveler and we did not verify all reports, our statistical data may not include all IR/D travelers, trips, or costs. Based on our assessment, we concluded the computer-processed data was sufficiently reliable to use in meeting the audit's objective.

We conducted this performance audit between November 2010 and February 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 objective.

We held an exit conference with NSF management on February 9, 2012.

Appendix C: Recommendations in the May 2011 IR/D Task Group Report

Recommendations

The Task Group has identified the main issues with the current implementation of the IR/D program. Implementation of the following set of recommendations will improve the management and operation of the program to provide appropriate oversight and accountability of the program. The recommendations fall under four major categories:

- Clarify the scope of the program in support of the stated purpose, including to prospective staff considering employment at NSF;
- Establish appropriate review, approval and oversight mechanisms to track resources expended on program;
- Automate and introduce efficiencies in the creation, review, approval, update, and renewal of plans; and
- Provide appropriate training and continuing guidance to participants, approvers, and managers.

A. Recommendations related to the scope of the program

1. Scope of Program – The program should be focused on independent and original research of the participants and their involvement with activities to create and maintain professional and scientific competencies. Developmental activities related to research activities should be included in the program.

All IR/D plans submitted for approval must have an independent research component. Plans may also have developmental activities. The new Guide to the IR/D Program (discussed below) should include guidance as to which developmental activities are appropriate for an IR/D Plan. The IR/D program should support time and travel costs needed to enable independent and original research activities, developmental activities related to that research, and other research-related activities that contribute to creating knowledge and maintaining the scientific research enterprise of the United States. Training programs and attendance at meetings, conferences or workshops on behalf of NSF, such as representing one's program at PI meetings, or performing outreach to the community should not be included on IR/D plans, as they are within normal NSF duties.

2. Program Transparency for Potential New Staff –Standard information regarding the IR/D program should be provided to all potential staff to increase the consistency of communication across NSF organizations and set realistic expectations regarding the utilization of the program.

Persons being interviewed for positions at NSF should be informed about the program. They should also be informed about certain restrictions associated with the program, and be given realistic expectations of what they may be able to accomplish under the IR/D program. For example, it should be made clear to potential new staff that although NSF strongly supports this program, it is expected that participants and their supervisors will coordinate to minimize any

interference that the IR/D activities have with the participant's assigned responsibilities. It should also be made clear that participation may be curtailed at the participant's request or at their supervisor's discretion, that funding may be limited, and/or that they may determine they do not have time to participate at the anticipated level after they arrive at NSF. We recommend that a one page summary (see Attachment C) be distributed by any recruiting office that discusses the IR/D program with a prospective staff member.

3. Personnel Manual – The NSF Personnel Manual should be modified to reflect the changes listed herein.

The NSF Personnel Manual needs to be updated to reflect the program's revised scope and operation. To the extent possible, processes and guidelines that are likely to change should be included in a separate Guide to the IR/D Program.

B. Recommendations related to review, approval and oversight mechanisms

1. Plan Approval Authorities –Participant plans should be reviewed by a Directorate/Office IR/D Program expert (proposed below) and the participant's supervisor, and then approved by the relevant approving official.

We recommend that Division Directors or Office Directors be designated as the approving official for Program Officers participating in IR/D, that Assistant Directors approve plans for Division Directors, and that the Deputy Director approve IR/D plans for Assistant Directors and Office Directors. These would be designated the relevant approving officials. In addition, all plans must be reviewed by a Directorate/Office IR/D program expert to determine if there are any issues with the proposed plan that may need modification or additional review prior to approval.

The approval process must be clearly described and incorporated into the automated IR/D plan submission system (discussed below). In addition, if certain activities requiring specific reviews are included in the plan, the plan should be routed by the automated system to the appropriate organization for review. An expedited approval process that routes IR/D plans to those who have the knowledge, training, and authority to make decisions will increase the accountability of the program. Providing authoritative resources to assist in the approval process will significantly expedite the approval of the plans. Approvers may consult with the proposed IR/D Council as needed (see below). In addition, Directorate/Office IR/D Experts (see below) should do so if an unusual request is being made for which there is no precedent.

When applicants have a conflict-of-interest with certain institutions and individuals named in their IR/Ds, then others in the organization will need to handle any proposals received from those institutions or individuals. Supervisors should consider this workload impact on other staff when they review IR/D plans.

In the event that there are *substantive* changes in the IR/D, a modified plan should be submitted for approval. For example, significant changes in the research objectives or in the scope of the research would require new approvals. Similarly, a modified plan should be submitted for approval if new collaborations have developed (even if the scope or objectives are not substantively changed), so that conflicts-of-interest can be documented and appropriately managed. Changes in the IR/D plan need to be reviewed by the employee's supervisor and approved by the relevant approving official.

It is understood that the proposed IR/D travel as described in the original plan may change over the course of a year. Since the same person is responsible for approving the employee's travel and IR/D plans, most changes in the cost, location, or dates of IR/D travel will not require modification of the approved IR/D plan. However, the traveler must clearly indicate in the "comments section" of the Travel Authorization for the travel that "This trip is associated with my current IR/D plan, but was not included in the original plan because ..." By virtue of approving these travel authorizations, the supervisor indicates s/he has approved changes in planned IR/D travel.

2. Cost Accounting for the Program – New accounting codes should be created for both the AOAM and Research-related Accounts to provide for the tracking of all expenditures associated with the program.

In order to track IR/D expenditures, the Task Group recommends creating specific IR/D accounting codes. Four new codes should be created – two for AOAM funds and two for Program funds. Within these, one code should be for travel related IR/D expenditures and the other should be for non-travel related IR/D expenditures. The FedTraveler system should be modified to include these new classifications in the drop-down "purpose" field. Also, dual-purpose trips (which include both IR/D and NSF-specific activities), could utilize these financial codes to account for the split sources of funding. Staff will need to be informed and trained to utilize the new financial coding structure.

3. Personnel Resource Accounting for the Program – IR/D participants should account for the time spent performing IR/D activities, which should include travel occurring during the participant's normal workday.

The current NSF time and attendance system is scheduled to be replaced in the Fall of 2011. The new time and attendance system (WebTA) has the potential capability to enable both Federal employees and IPAs to account for time spent on IR/D. Although there are costs associated with enabling IPAs to use WebTA, the new system should be configured to allow all staff, including IPAs, to account for normal workday hours spent on IR/D activities.

In determining what should be included in accounting for time spent on IR/D, the actual cost to NSF is the amount of normal workday time, either on-site or off-site, spent on IR/D activities, including any IR/D activities being performed while at NSF (e.g. conference calls, document review, or meetings conducted at NSF) as well as any travel time needed to get from NSF or

home to the IR/D site. Thus, both the request for IR/D time and the accounting of the time spent on IR/D should include travel time during the participant's normal workday. Total time, including travel time, normally may not exceed 50 days.

Until the WebTA system is available, IR/D participants preparing Travel Authorizations in FedTraveler should note in the "comments section" the number of IR/D days being requested and how many have been used related to their current plan. (e.g. "This trip will be days 14 and 15 under my current IR/D plan."). Days may be counted in half day increments until the WebTA system is available.

4. Annual Accounting – There should be an annual accounting of the utilization of the IR/D for the prior fiscal year.

An annual program accounting will enable the agency to review and assess program utilization. Totals will be created for the dollars and days spent for IR/D activities for each appointment type (Federal employees vs. IPAs) in each division. This report will be distributed to each division, directorate, and office. We recommend that the agency as a whole, as well as individual offices, directorates, and divisions use these data to assess how the program is being used, and to inform future planning.

5. Report of IR/D Activity Results – At the end of each plan year, IR/D participants should provide a short report which includes a brief description of the results of the activities, and any resulting research outputs, including publications.

All IR/D participants should provide an annual report on their IR/D activities to their supervisor and the relevant IR/D Approving Official. This reporting function should be added to the automated IR/D system. The report should be short, typically not more than one or two pages, but should provide the reader with an understanding of the research in progress or the results of the research. The annual report should include a section on the participant's experience with the program. Participants should be encouraged to share the results of their activities both within, and external to, the agency. Approval of subsequent IR/D activities should be contingent upon receiving a report for the previous year. The submission of a final IR/D Report should be added to the NSF Clearance Form (Form 362) as part of the participant's Division/Office responsibilities.

6. Management Oversight – All management officials who supervise IR/D participants and/or approve IR/D plans should be responsible for day-to-day oversight of the IR/D program.

Supervisors and IR/D Approving Officials have an important role in providing day-to-day oversight of the IR/D program. They are involved in initial approval of plans, in approving all travel to support those plans during the year, in approving any changes to the plans, in the receipt of substantive annual reports from participants, and in approving renewals of ongoing plans. To ensure that they have all of the information they need to carry out their oversight

responsibilities, we recommend that HRM develop training materials for these individuals. Oversight of the program can be assisted through on-going dialogue with the participants and via an exit survey provided to staff as they leave NSF.

C. Recommendations related to improvement of preparation and approval process through automation

1. Automation of Participant Plans – Priority should be given to completing the automated system already being developed by the Division of Information Systems (DIS), under the guidance of HRM and OGC, to support the annual development of new program plans by participants.

The current paper-based system is subject to delays in handling and lost or misplaced applicant plans. An automated process that can provide guidance to participants, supports the routing process for approval of plans, and provides a capability that allows the plans to be modified during the year will largely eliminate these issues. Having a central, automated repository of plans will also allow for simplified reporting and analysis. DIS has initiated development of an automated system by which applicants can prepare, modify and route their proposed plan through the appropriate channels for review and approval. The system currently being developed is designed to provide for automatic forwarding of the applications to the appropriate person for review and approval, yet can allow for deviations as required. Additionally, this system should be designed to imbed appropriate explanations and links to relevant guidance which will assist the IR/D applicant in preparing the plan. We also recommend that the automated system include a feature to amend an existing plan, to allow for facile submission and to document approval of any changes.

2. Modification of Plan Template – The template used for the development of a plan should be modified to include interactive review and guidance for the inclusion of common activities that may require special instruction and handling.

The automated system should provide as much assistance and guidance as possible to individuals when they are creating their IR/D plan. This will reduce the number of issues that will be encountered later in the process. The automated plan template should query participants if they intend to include certain types of activities that are known to require additional information, may require additional reviews, or are not allowed. The system can provide immediate guidance to the applicant where such situations exist. For example, if there is the involvement of a foreign government, the applicant should be asked to provide information regarding the type of involvement and then be notified that the plan will be sent to OGC for required review and guidance. Another example is if the participant intends to write a paper, chapter, or book for compensation (royalties or advances). If so, the system should inform the applicants that they must perform these activities on their own time, as the Government can only pay them for activities undertaken as part of an IR/D. This more detailed review at the beginning of the process should significantly reduce the time needed to approve the plans.

Until the new IR/D Plan Template is automated and available, participants should use a new Microsoft Word version of the template (Attachment D). After the plan is approved by the relevant approver (see below), a copy of the plan must be forwarded to HRM. Until the automated system is in place, IR/D plans should be maintained by the IR/D participant, the IR/D participant's organization, and by HRM.

D. Recommendations related to providing training and continuing guidance to participants, approvers and managers.

1. Development of a Guide to the IR/D Program – A guide document should be created to assist staff in the development of IR/D plans.

A Guide to the IR/D Program should be created that provides information and guidance for staff creating, modifying, or renewing an IR/D plan. This Guide should provide the program parameters, information about allowable activities and costs, sample plans, instructions on the use of the automated system, and other information needed to properly complete the initial IR/D plan submission. The Guide should also have sections for participants, supervisors, approvers, and managers that describe their responsibilities regarding the program. This should be a document that is continually updated to reflect current laws, regulations, and policies regarding allowable costs and activities. The Guide should be maintained on-line with links to other appropriate documents and systems.

2. Designation of a Directorate/Office IR/D Program Expert(s) – Each Directorate and Office should identify one or more IR/D Program Experts who will be responsible for reviewing all IR/D requests within that organization.

Each Directorate and Office should appoint one or more IR/D experts who will receive training regarding all aspects of the program. These experts will be notified if there are changes to the laws, regulations, or policies associated with IR/D. They will have access to IR/D Council determinations (see below) regarding specific guidance, updates on permissible IR/D activities and allowable costs. These directorate and office experts will have access to subject matter experts on the IR/D Council for assistance if new or unusual requests or situations arise. After a plan has been reviewed by a Directorate/Office IR/D Expert, the final approval of the plan will reside with the applicant's relevant approving official. Note there are some types of requests that will always need review external to the Directorate or Office, such as plans including the involvement of a foreign government.

3. IR/D Council – An IR/D Council should be created to make determinations regarding allowability of requested IR/D activities and allowable IR/D costs beyond time and travel.

This Council should include a financial expert from DFM, a legal expert from OGC, a travel expert from DAS, and at least two representatives from programmatic Directorates/Offices. A representative from HRM should be on the Council and have responsibility for coordinating and

supporting the IR/D Council's activities. The Council should make determinations expeditiously to avoid delays in processing an IR/D plan for approval. Directorate/Office IR/D Experts and other staff may ask for a determination from the IR/D Council. The Council may consult with other NSF experts as required. Council determinations will be documented and made available electronically to ensure consistency in the application of allowable activities and costs over time and NSF organizations.

We recommend that during the first year of the implementation of the IR/D program that the IR/D Council be tasked with reviewing a sample of approved plans to ensure the new policies have been implemented regarding allowable costs and activities. We further recommend that during the first year the IR/D Council be tasked with periodically convening all of the Directorate/Office IR/D Program Experts to discuss any issues with implementation of the program.

4. Training – Training sessions should be conducted on a periodic basis to assist staff in the development of IR/D plans.

Providing up-front training, guidance, and assistance to staff creating new IR/D plans will result in improved quality of plans which will also expedite approvals of plans. Improved plans will increase the accountability of the program. The training should be no more than one hour and provide an overview of the proposed Guide to the IR/D Program, a demonstration of the automated IR/D system, and enable staff to ask specific questions about the program. This training will be coordinated by the Division of Human Resource Management and should be offered as an optional supplement to the New Employee Orientation and made available to both new and existing staff.