

Investigations

Civil and Criminal Investigations

False Claims Act Case Against University Settled For \$7.6 Million

OIG participated in a multi-agency investigation of allegations against a Connecticut university, resulting in a civil settlement under which the university paid \$7.6 million to the federal government. The investigation and settlement involved \$3 billion in federal awards to the university from 2000 through 2006. We worked with the U.S. Attorney's office and agents and auditors from the FBI and OIGs for HHS, DOD, NASA, and DOE.

The investigation focused on allegations involving two types of mischarges to federal grants. Both types of mischarges arose as violations of the basic principle that recipients of federal grants are allowed to charge to each grant account only "allocable" costs, which are costs that relate to the objectives of that grant project. The first allegation involved *cost transfers* and the requirement that costs transferred to a federal grant account must be allocable to that particular grant project. It was alleged that some university PIs at times improperly transferred charges to a federal grant account to which those charges were not allocable. PIs allegedly were motivated to carry out these wrongful transfers when the federal grant was near its expiration date and they needed to spend down the remaining grant funds.

The second allegation involved *salary charges* and the requirement that charges to federal grant accounts for researcher time and effort must reflect actual time and effort spent on a particular grant project. It was alleged that some university PIs at times submitted time and effort reports, for summer salary paid from federal grants, that wrongfully charged 100 percent of their summer effort to federal grants when, in fact, the PIs expended significant effort on unrelated work or were actually on vacation. PIs allegedly were motivated to carry out these wrongful salary charges by the fact that they are not paid salary by the university during the summer.

We determined that there was credible evidence to support the allegations, and that these mischarges were able to occur at least partly because the university had weak procedures and internal controls in place. The university cooperated fully with the investigation, which included the production of half a million university records. In addition, at the outset of the investigation, the university undertook a prodigious project to revamp its processes to ensure prospective full compliance with all federal award requirements.

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During the relevant time period, HHS provided 82% of the award funds received by the university, and NSF provided 5.7%, making NSF's share of the \$7.6 million settlement \$438,821.

Awardee Staff Abuse Procurement Authority

In five cases, employees of awardee institutions abused positions of trust for personal gain. Such abuse violates federal as well as state and local criminal laws. Four of the cases involved using grant and university funds for personal purchases, and in the fifth, an awardee contracting officer engaged in a kickback scheme. The importance of preventing these types of abuses is magnified by their emphasis in the Recovery Act, and our office is currently developing several proactive approaches to address this issue.

Former Program Coordinator Sentenced To 10 Years In State Prison For Purchase Card Abuse: A former program coordinator under an NSF grant to a Georgia university was sentenced to 10 years in prison, to be followed by 10 years of probation, after she entered a guilty plea to a felony count in the Fulton County Superior Court. The subject had been indicted for theft by racketeering, involving the repeated personal use of a state-issued purchase card to make personal purchases.¹⁵ Her personal purchases included automobile insurance and repairs, groceries, and jewelry. In order to conceal her personal purchases, the program coordinator altered receipts and used the university accounting system to move her purchase card charges to several different accounts—including accounts for an NSF grant and private grants—so they would be difficult to track. The university subsequently returned all questionable charges to the NSF Grant.

Former Research Center Employee Sentenced for Kickback Scheme: A former research center employee pled guilty and was sentenced by a federal judge in the U.S. District Court for the District of Colorado for her orchestration of a kickback scheme. We initiated the investigation because the research organization receives substantial NSF funding. Our investigation disclosed the former employee used her position to steer printing contracts to a vendor in exchange for its agreement to pay a portion of the contract price back to her. As a result of the former employee's actions, the vendor received approximately \$270,000 in business in 2002 and 2003. When that vendor reported the payments made to her to the IRS, the former employee made an arrangement with a friend to set up a faux company to bid on printing jobs, using bids he received from actual printing companies. This pretend printing company paid her amounts she specified for each contract, receiving approximately \$450,500 in business from 2003 to 2005, without reporting the payments to the IRS.

The former employee was sentenced to 12 months home detention with electronic monitoring, three years probation, and ordered to pay a \$100 special assessment fee and restitution of \$80,746. We recommended that NSF debar the former employee for three years, and NSF's decision is pending.

¹⁵ March 2008 Semiannual Report, p.28.

University Employee Used Purchase Card for Personal Purchases

And Charged NSF Award: A Michigan university's office of internal audit determined that, over a 2-year period, an administrative assistant used her university purchase card to make personal purchases totaling \$24,405, of which \$11,765 was charged to an NSF award. The charges to the NSF award were listed by the employee as computer supplies, when in fact they were all personal items such as clothing, nail salon services, cable and cellphone service, and gasoline.

The university's investigation determined that the employee's supervisor failed to request or review her monthly purchase card statements as required by the university's policy. When interviewed by the university, the supervisor indicated that she was not aware she was supposed to review and approve the purchase card statements on a monthly basis. The supervisor's lack of oversight facilitated the employee's embezzlement scheme.

The university terminated the employee and returned \$11,765 to NSF. The university filed criminal charges with the local prosecutor's office and the employee pled guilty to 1 criminal count of embezzlement and was sentenced to 5 years probation and ordered to pay full restitution of \$24,405 to the university and \$7,691 to reimburse the university's office of internal audit's cost of investigation. We recommended that NSF debar the former employee for 3 years.

PI Misappropriated NSF Award Funds Totaling Over \$282,000: The director of a university medical research center, who served as a PI on an NSF award, made inappropriate purchases and improperly charged \$282,409 to the NSF award over a 2-year period. The PI purchased numerous personal items with NSF award funds, some of which he had shipped directly to his home. The personal purchases included two LCD computer monitors, a CD drive, a video card, cherry bookshelves, and books. In addition, he inappropriately charged for equipment and travel expenses allocable to non-NSF awards and for items which could not be properly charged to any award. The university also discovered that the PI had improperly charged \$678,000 to other federal awards.

The university returned \$282,409 to NSF for these inappropriate expenditures and terminated the PI from his position at the university. The U.S. Attorney's Office declined prosecution of this matter because the university had returned all of the funds to NSF for all the fraudulent charges. We recommended that NSF debar the PI for 3 years and prohibit him from serving as an NSF merit reviewer, advisor, or consultant. NSF's decision is pending.

Debarment Recommendation for Former Research Center Employee:

We recommended debarment of a former accountant at an NSF-funded research center after she was sentenced to federal prison for 32 months, 3 years supervised probation, 250 hours of community service, restitution of \$316,874, and ordered her to pay a special assessment fee of \$2,200. As discussed previously,¹⁶ the accountant used state-issued purchase cards

¹⁶ March 2008 Semiannual Report, pp.27-28.

to purchase over 3,800 personal items over five years. The sentencing followed a plea of guilty by the accountant in the U.S. District Court for the Northern District of Georgia to 17 counts of mail fraud and 5 counts of theft from an organization receiving federal funds. We recommended that NSF debar the former employee for five years, and NSF's decision is pending.

Impersonation of an NSF Official Results in Felony Conviction, Five Years Probation, and \$80,000 Fine

We previously described a case in which a subject impersonated an NSF official, to lure women to participate in a fake NSF research project in California.¹⁷ He pled guilty to one count of violation of 18 U.S.C. § 912, False Personation of an Officer or Employee of the United States, and was sentenced to: 5 years probation to include real-time monitoring of his computer use; 6 months home detention; and payment of fines and penalties totaling \$80,100. Following his conviction and sentencing, we recommended that NSF debar the subject for 5 years. NSF's decision is pending.

Two School Districts Fail To Handle Award Funds Properly

Two school districts returned almost \$400,000 in grant funds to NSF after accounting improprieties were uncovered by OIG investigations and audits. In previous OIG investigations into allegations of misuse of NSF funds by school districts, we found significant problems that resulted in settlements under the False Claims Act, repayment of misspent funds, and implementation of compliance plans. The problems we found were exacerbated by inadequate internal controls, lack of experience with the requirements for proper expenditure and oversight of federal award funds, and intense budgetary pressure. These problems are likely to increase as the current financial crisis leads to dramatically lower tax revenues for local governments required to operate with balanced budgets. The recent passage of the Recovery Act may result in a significant increase in NSF funding to such institutions, posing greater risks for fraud, waste, and abuse. With current budget shortfalls and reductions in base funding to school districts, an aggressive approach to preventing the misuse of the additional funds is critical to the programs' success. In an effort to identify the most efficient use of our resources, we are developing proactive approaches to identify risk factors to reduce as many as possible.

California School District Returns \$300,000 And Implements A Compliance Plan To Resolve False Claims And Other Wrongdoing: A public school district in California entered into a settlement agreement with the Department of Justice (DOJ) under which it agreed to repay \$300,000 to NSF. The district's lack of internal controls and misuse of government funds were initially discovered during an NSF OIG audit. The matter was referred to OI, and our investigation determined that the district had submitted approximately \$1.7 million in false claims, by charging awards for unallowable items, overcharging indirect costs, and failing to properly track participant support funds.

¹⁷ September 2008 Semiannual Report, p.28.

Because the district is facing financial difficulties and lay-offs, NSF agreed to accept the settlement along with a compliance plan designed to ensure that the district's internal controls and oversight of NSF funds are strengthened so that such fraud does not reoccur. This compliance plan requires the district to revise policies, train staff, and perform annual reviews to ensure continued compliance with all NSF requirements. They are also required to submit annual reports to OIG identifying any discrepancies and addressing the corrective actions they have implemented.

Alabama School District Fails to Account for Funds: A public school district returned \$97,867.56 to NSF after our investigation disclosed it had drawn down more money than it could account for. This investigation was opened pursuant to a proactive review of cooperative agreements. During the course of our investigation, the school district provided various versions of general ledgers for this award, unable to ascertain the exact amount it had spent. Finally, the chief financial officer certified to the exact dollar figure of supportable expenditures. This certified amount was \$97,867.56 less than what the school district had drawn down from NSF, so it returned the amount of funds it could not vouch for to NSF.

University Changes Award Management Practices in Wake of Misusing Participant Support Funds

We continue to receive allegations about the misuse of participant support funds, which are separately budgeted and cannot be spent for other purposes without advance written permission from NSF. We have investigated several such allegations as False Claims Act cases, resulting in the repayment of misspent funds, implementation of new policies, and imposition of compliance plans. In this semiannual period, a university returned \$83,994.51 and changed its award management practices, after our investigation revealed it misused participant support funds. This investigation was opened pursuant to a proactive review of participant support funds. The investigation revealed that on two NSF awards, the university reallocated participant support funds to other budget line items without the required prior written approval from NSF. In addition to returning the misused funds, the university's office of sponsored research now sends notices to PIs who have awards containing participant support funds, drawing their attention to the NSF requirement for prior written approval for rebudgeting. The university also created a mechanism in its financial system that flags any rebudgeting of participant support funds in a timely manner.

Small Businesses Abuse NSF Grants

One small business owner was debarred and another recommended for debarment after two unrelated investigations indicated that they had abused their NSF grants. Small businesses are generally considered to be at greater risk for such abuse because they often lack the staff and internal control systems to ensure compliance with federal award requirements. In addition, because the scientific programs at the 13 federal agencies that provide SBIR awards overlap, there is a significant risk that SBIR awardees can obtain duplicative funding for the same project from different agencies. Consequently, we continue to

receive and investigate allegations of wrongdoing involving SBIR awards, which often result in criminal convictions, False Claims Act settlements, repayment of misspent funds, and debarment of companies and individuals.

PI And Her Company Debarred For Misrepresentation To NSF: As reported in a previous Semiannual Report,¹⁸ a PI and small business owner wrongfully received a Phase II grant from the Small Business Innovation Research (SBIR) Program based on the PI's statements that her new company was a "spin-off" of the Phase I awardee (the first company). The PI was an officer and co-owner of the first company but was the sole owner of the new company. Our investigation found that the new company was not a "spin-off" of the first company because it had no affiliation with the first company or its other co-owners (who were unaware that the PI had negotiated the change of grantee with NSF). Based on our recommendations, NSF terminated the grant to the PI's new company, thereby making \$274,999 available for other purposes, and debarred the PI and her company for three years. The NSF SBIR program also implemented procedures to ensure this type of scheme is not repeated.

Former Professor's Involvement in Outside Companies Questioned: An OIG investigation into an allegation that a former professor at a Colorado university submitted a proposal to NSF that overlapped with an undisclosed proposal from an external non-profit research company founded by the subject, resulted in a recommendation of debarment. The university and our office both conducted investigations into improper award management and conflicts of interests. NSF had concurrent awards to the subject at the university and the first company, but more recently only to the company.

Our investigation revealed that the subject, consistently and over a period of many years, violated or disregarded various federal and NSF award administration requirements, violated university policies related to conflicts and outside compensation, and repeatedly misled both NSF and the university as to material facts about his outside companies and other matters relating to NSF awards. After many years of operation of the first company, the subject created a second, for-profit company that acted as a subcontractor to the first company. The subject was the sole owner and employee of the second company, which existed solely to receive grant funds from the first company and pay them to the subject as salary. The subject failed to notify NSF of the subcontracting relationship with the second company, and improperly failed to limit indirect charges for the subcontract costs to the first \$25,000 as required.

The university repeatedly asked the subject to disclose all outside financial interests, and he repeatedly withheld information about the funds he received from his companies; when the university learned the truth, it severely restricted his access to its research facilities. The professor then resigned from his tenured faculty position.

¹⁸ September 2007 Semiannual Report, p.26.

When we asked him to supply supporting documentation for the salary payments, the subject provided timesheets reflecting highly implausible work hours—for example, the subject claimed effort averaging nearly 14 hours a day for 98 continuous days between May and August 2002 (including weekends and holidays), and in other instances claimed to have devoted as much as 21 hours per day to the project. We recommended that NSF debar the subject for five years, and NSF's decision is pending.

University Self Audit Reveals Weaknesses in Award Management and Prompts Award Monitoring Changes

A university returned \$139,095 to NSF for one award and de-obligated \$22,250 to another NSF award following an investigation into their award management practices. Our investigation was prompted by the discovery that the university had agreed to remove one of its PIs from any responsibility over federal funds, as the result of an investigation by the Department of Energy (DOE) OIG and settlement agreement with the Department of Justice.

To determine if NSF awards had been affected, we selected an NSF award and requested documentation from the university. The university responded by auditing the award, and concluded that \$139,095 had not been properly disbursed, returning that amount to NSF. We then requested information about a second award, and the university's audit revealed \$22,250 that was questionable, which the university de-obligated from the open award.

Having confirmed that the university's internal control processes were questionable, we recommended that NSF designate this university as "high risk" until it can demonstrate that effective award monitoring and management practices have been implemented. NSF's decision is pending.

Administrative Investigations

In both this and the previous Semiannual period, we referred a number of employee misconduct cases to NSF, as well as management recommendations for improving NSF's workplace environment. These cases involved travel abuse by senior NSF managers, questionable personal relations between supervisory/subordinate senior managers, misuse of NSF resources for collecting, viewing, and disseminating pornography, as well as telephone resource and time and attendance abuse. In our view these cases raise concerns about NSF's professional workplace environment. Here we report NSF's findings and interim or final actions in each case, or whether it remains pending. We have expressed concern to NSF about the length of time it has taken to resolve these cases and the timeliness with which NSF has provided information to us about their resolution. To address these concerns, NSF and OIG are working to develop procedures to ensure that OIG receives information in a timely and effective manner.

We first report new matters that we have referred to NSF for action, and then report the actions NSF has taken, consistent with federal personnel rules, in previously-referred cases as well as its actions on recommendations to improve NSF's workplace.

New Matters Referred to NSF

Two Employees Conspire to Abuse NSF's Integrated Time and Attendance System

Our investigation determined that two NSF program assistants routinely signed each other in or out of NSF's Integrated Time and Attendance System (ITAS), resulting in both employees receiving salary for hours they did not work. Both employees had previously been warned by their supervisor to cease their abuse of ITAS.

We analyzed the employees' ITAS records for a six-month period, comparing them with ID badge usage reports, emails, and telephone records, to determine when they actually started and ended their work days. Our analysis determined that one of the employees had improperly received pay for more than sixty-three hours during that period, resulting in a loss to NSF of \$1,187, while the second employee improperly received pay for more than thirty-four hours resulting in a loss of \$576. Both admitted to abusing the ITAS by signing each other in or out.

We concluded that the employees engaged in fraudulent activity by knowingly abusing NSF's ITAS procedures, and recommended that NSF proceed with appropriate administrative action. NSF issued a formal Notice of Proposal to Remove each employee, and final actions are pending.

Employee Misuse of NSF Telephone Results in Reprimand

Our investigation determined that an employee excessively used her NSF office telephone, during official government time, for personal phone calls. We analyzed the employee's outgoing and incoming telephone records for a two-year period, focusing on the monetary and time costs associated with one friend's telephone number. Our analysis indicated the direct cost of calls made to the same telephone number totaled \$790, and the employee spent the equivalent of thirty-seven work-days on calls to and from that one telephone number. The employee thus earned approximately \$15,000 while talking on the telephone for personal purposes. Although the employee maintained the communication was generally work-related, our review of her emails revealed that she was also in frequent email contact with the person she was talking to on the telephone, often on personal matters unrelated to her NSF duties. Indeed, in one email, the friend wrote that she was "overwhelmed with the phone time you seem to require" and was getting "nothing done" with her own work.

We concluded the employee knowingly violated NSF's telephone use policies and the government's ethical standard requiring her to use official time to perform official duties. We further noted that, since the employee was the subject of an OIG investigation in 2003 regarding abuse of her NSF travel credit card, she should have been especially vigilant in ensuring her subsequent conduct was in compliance with NSF and federal requirements. We recommended that NSF take administrative actions appropriate and consistent with previous similar employee incidents. NSF issued a formal Official Reprimand to the employee, and she invoked her right to grieve that action under NSF's Collective Bargaining Agreement (CBA).

NSF Employees and Contractor Personnel Sent, Received, and Saved Emails Containing Pornography

During the course of investigating four employees for improper use of NSF computers for pornography, we identified an additional nineteen employees and contractor personnel who had also sent, received, and saved emails containing pornographic images, dating as far back as ten years. We found no evidence that these individuals violated federal law; accordingly, we forwarded our findings to NSF with a recommendation that it initiate investigations to determine the extent of these activities and take appropriate administrative actions.

Of the eight NSF employees, two are no longer with NSF. Three of the employees had worked at NSF for thirteen, eighteen, and twenty-one years, respectively, and after this reporting period, NSF issued a formal Notice of Proposal to Remove each of them. Final actions on those three employees are pending, as are any actions for the other three.

Eleven of the individuals were contractor employees. After being notified by NSF, the contractor provided oral counseling to three of its employees, provided a written warning to two, suspended four for five days each, and terminated four (two of whom it had previously suspended). The contractor reinforced its policies on appropriate use of IT resources by having all of its employees read and sign a new email policy memo which includes the requirement that they adhere to IT and email policies of governmental agencies where they are assigned.

Previously Referred Cases on Employees Whose Actions Adversely Affected NSF's Workplace Environment

- Two Senior Management Employees Used NSF-Funded Travel To Advance Their Personal Relationship:** Our investigation determined that a senior manager and his direct subordinate, also a senior manager, had an intimate personal relationship and took forty-seven joint trips over a two-and-a-half-year period, totaling \$144,152 of NSF funds. Three successive Assistant Directors (ADs) had questioned the supervisor and subordinate about the necessity for their extensive joint travel, and one of the ADs restricted joint travel because of concern that the repeated concurrent absences were having a negative effect on the work of their division. Despite these ADs' concerns, neither the supervisor nor his subordinate disclosed the nature of their relationship to any of the ADs—explaining to investigators that they believed that if the ADs had known about the relationship, trips would have been “squashed” or “cancelled.” The ADs told us that, if they had known about the intimate relationship, they may have made different decisions regarding the propriety and necessity of such joint travel.

The subordinate admitted that some of the NSF-funded trips included days added on solely to further the relationship, and she also admitted that it was unnecessary for both of them to go on many of the trips. The supervisor insisted that all trips and the duration of all trips were necessary. We were unable to determine the full amount of NSF travel funds expended to further their personal relationship. Based on the subordinate's admissions regarding three specific trips, and other evidence, we determined that at least \$1,500 of personal travel expenses were inappropriately paid by NSF.

The Department of Justice declined prosecution, so we referred this matter to NSF for appropriate administrative action regarding: failure to meet the standards of conduct expected of senior-level managers; failure to comply with NSF travel rules; lack of candor in failing to disclose the nature of their relationship when providing justifications for joint travel to the ADs; and the inappropriate use of NSF travel funds to further their personal relationship.

While our investigation was ongoing, we informed NSF of our preliminary findings. NSF announced publicly that the supervisor had accepted a new senior position in the AD's office, and withdrew its nomination of the supervisor for a prestigious award. NSF also significantly downgraded both the supervisor's and subordinate's performance appraisals and denied the supervisor a performance bonus. The subordinate has appealed her performance rating, and that appeal is pending. NSF also contracted for a review of potential sexual harassment in the relationship. With regard to the questionable travel costs, NSF informed OIG that it determined that there were reasonable scenarios that could account for the travel expenses, but recently informed us that it is continuing to evaluate the supervisor's use of federal funds for personal travel expenses.

In the course of this investigation, OIG encountered significant difficulties obtaining certain information from NSF because NSF viewed the information as attorney-client privileged. The protracted resolution of that issue resulted in a seven-month delay in our investigation. We were ultimately provided the information we requested, but only after NSF twice sought the opinion of the DOJ Office of Legal Counsel—which twice affirmed OIG's access to such information.

- **Senior Level Official Misused NSF Travel Funds:**¹⁹ In our September 2008 Semiannual Report we reported the results of our investigation of a senior NSF manager (the subject) for misusing travel funds and abuse of authority. We determined that the subject based his decisions to take NSF-funded travel, at least in part, on his desire to further personal relationships with women, one of whom was affiliated with NSF. He also exhibited a lack of candor when he provided false or misleading information to us in the course of our investigation. We further concluded that the senior official's actions resulted in a loss of \$11,283 to NSF in misused travel funds.

In response to our recommendations, NSF informed us that it had concluded that the majority of the NSF-funded travel at issue in the report was taken for legitimate reasons. NSF agreed, however, that some of the travel was personal in nature. In December 2008, NSF resolved this matter by orally reprimanding the subject, requiring him to return \$1,215.50 for personal travel expenses, prohibiting him from engaging in any future NSF-funded international travel; and requiring him to obtain approval from a superior for NSF-funded domestic travel. NSF did not foreshorten the duration of his tenure at NSF. The subject is scheduled to return to his university in late summer 2009.

¹⁹ September 2008 Semiannual Report, p.30.

- **An NSF employee who was overheard viewing pornographic videos was found to have used his NSF computer to visit a variety of pornographic websites on numerous occasions during official work hours.**²⁰ NSF issued a formal Proposal followed by a Decision suspending him for ten calendar days without pay.
- **An NSF employee continued to store sexually explicit image files on his NSF computer, despite being previously reprimanded for downloading inappropriate files and peer-to-peer software on his NSF computer.**²¹ The employee also sent emails from his NSF account that contained numerous sexually explicit image and video files to users outside NSF. Based on our findings and his recidivism, NSF issued a formal Proposal to Remove followed by a Decision terminating the employee. After being terminated, the employee invoked his right to grieve under NSF's CBA, and that process is pending.
- **An NSF employee stored and viewed numerous sexually explicit image files on his network drive.**²² NSF issued a formal Notice of Proposal to Suspend the employee for ten calendar days without pay, and final action is pending.

NSF Implements Additional Changes to Respond to OIG Recommendations To Enhance The Professional Workplace Environment

We previously described recommendations we made in July 2008 to NSF management, and some of management's responses, to address systemic issues raised by numerous cases that reflected poorly on the workplace environment at NSF.²³ In this semiannual period, we provided additional recommendations and NSF management implemented more—but not yet all—of the recommendations:

- We reviewed NSF's IT security awareness training and recommended changes to limit future abuses. NSF agreed to modify its online training consistent with our recommendations, but was subsequently required by OPM to convert its online training into an NSF-specific module that would work with OPM's governmentwide module. In February 2009 we evaluated the final version of the NSF module, in which NSF endeavored to implement our previous recommendations. We noted numerous opportunities for improvement, to emphasize the appropriate use of resources including providing direct hyperlinks to NSF policies and requiring each employee to certify acknowledgement of the policies and restrictions. In March 2009 NSF notified us that it had implemented all of our recommended changes.
- We recommended that NSF implement internet filtering software to prevent web access to inappropriate websites, such as those that include gambling or pornography; monitor attempts to access such sites; periodically search

²⁰ September 2008 Semiannual Report, p.32 (1st bullet).

²¹ September 2008 Semiannual Report, p.32 (2nd bullet).

²² September 2008 Semiannual Report, p.32 (3rd bullet).

²³ September 2008 Semiannual Report, pp.32-33.

NSF servers for saved pornographic image and video files; and notify OIG if it discovers material that violates federal law. NSF notified us in October 2008 that it had installed internet filtering software, but it has not implemented our other recommendations—however, in response to a Congressional inquiry, NSF recently stated that it is reviewing options that, if implemented, would be responsive to those recommendations.

- We recommended that NSF implement email filtering to remove pornography sent and received through NSF’s servers, and NSF is reviewing options to do so.²⁴ In response to a Congressional inquiry, NSF recently stated that it has acquired independent commercial expertise to assess current control environment, including filtering and file scanning, and will ensure that changes to established controls are communicated to us.
- We recommended that NSF ensure management oversight of personal use of computer systems, security systems, and employee training. In response, on February 20, 2009, NSF’s Director issued a memorandum to all Assistant Directors and Office Heads regarding “Appropriate Use of Government Resources,” reminding them that all employees must respect and adhere to the principles of ethical conduct required of federal employees. As required by that memorandum, each NSF office conducted an all-hands meeting by March 20, to advise employees of the importance of responsible use of government resources. While these actions represent a good start, additional actions will be necessary to comply with the intent of our recommendation.
- We recommended that NSF consider development of a formal policy on alternative means of employee discipline,²⁵ and train managers on its use. We are awaiting NSF’s response to this recommendation.
- In response to our recommendation, NSF recently issued two employee bulletins clarifying the “Definition of Official Travel” and the “Use of Leave While On Official Travel.” NSF has not yet completed its review of travel authorization process identified as lacking sufficient internal controls during recent investigations, but it indicated that “once this review has concluded, we will make recommendations with regard to how we might further improve our policies and our internal controls.”
- Finally, in the last Semiannual Report, we recommended that NSF increase the visibility of its Office of Equal Opportunity Programs (OEOP) including making operational all web links internally and externally to OEOP’s website, and developing guidelines and training to aid both managers and staff.²⁶ In January 2009 NSF published new policy statements on “Equal Opportunity and Diversity” and “Prevention of Harassment,” continued to address problems with internal and external OEOP web pages and staff contact pages, and took steps to make it easier for employees to locate OEOP assistance.

²⁴ Regarding this recommendation, an email exchange discovered by NSF in one of its investigations is noteworthy: two NSF employees (who were issued Notices of Proposal to Remove in connection with an OIG referral) discussed a news article about Congressional inquiries regarding NSF employees accessing pornography on websites, and one agreed with the other’s advice to be more cautious about the pornography they exchanged via email—after which the cautioned employee sent the other employee another pornographic email.

²⁵ See “Alternative Discipline: Creative Solutions for Agencies to Effectively Address Employee Misconduct,” MSPB 2008, available at mspb.gov.

²⁶ Semiannual Report to Congress September 2008, p.33

It also initiated a search for a permanent director of the OEOP, a position that has been held by an acting Director for over a year. In response to our recommendation to implement new guidelines and training to assist managers in addressing allegations or knowledge of intimate relationships between supervisory and subordinate staff, NSF stated that it would “evaluate the content of upcoming training offerings and ensure that the important issues highlighted in our list of recommendations were adequately addressed.”

Research Misconduct Investigations

Since its inception, an important element of this OIG’s overall program has been the pursuit of cases against individuals who commit research misconduct involving NSF proposals and awards. Science and scientific integrity have received heightened attention from both Congress and the White House. In addition, the recent enactment of the Recovery Act has established enhanced expectations regarding the accountability of public funds. It is therefore more critical than ever to ensure that all of those funds are expended on research and education projects that are carried out with the highest ethical standards, free of fabrication, falsification, and plagiarism. If an OIG investigation confirms a case of research misconduct, we refer it to NSF for adjudication.

Actions by NSF Management

Professor Copies from a Funded CAREER Proposal into His Own

A North Carolina faculty member’s CAREER proposal contained extensive plagiarism from numerous uncited sources, including CAREER proposals previously submitted to NSF by other researchers. We determined that the faculty member requested and received copies of multiple funded proposals from NSF via the Freedom of Information Act. He then copied extensively from several of the proposals he received into his own proposal. During the university investigation, the faculty member claimed that he was unaware of the need to cite the sources for the copied text, an explanation that the investigation committee found unconvincing. The university determined he committed research misconduct and terminated him.

In response to our recommendations, NSF: made a finding of research misconduct against the subject; proposed to debar him for three years, required three years of post-debarment certifications and assurances; prohibited him from serving as an NSF advisor, reviewer, or consultant for five years; and required him to complete an ethics training course on plagiarism. NSF’s final decision on the debarment is pending.

Former NSF Program Officer Blames His Plagiarism On Distraction

A former NSF program officer intentionally plagiarized several pages of material from a proposal submitted by another PI, which he had recommended for award during his tenure at NSF. When we asked him about the allegation, he stated that he had received permission from NSF’s Office of General Counsel to con-

tact the PIs of several proposals he had awarded for information he purported to use in a “best practices” book. Although he obtained the source material for his plagiarism directly from a PI he had funded, there was no indication that the former program officer obtained permission from this PI to use the material for his own proposal.

During the university’s investigation of the allegation, the former program officer attributed the copied text to time pressure, sloppy editing, and a computer malfunction that occurred while he was distracted by bird vocalizations at a remote field location. The university found the explanation “almost laughable if the charges were not so grave,” and made a finding of research misconduct; suspended the former program officer for a semester without pay; prohibited him from applying for internal or external funding for two years; and prohibited him from supervising graduate students for one year.

We concurred with the university’s findings, particularly given the large amount of text that the former program officer copied into his methodology, substituting only the name of the species he wanted to study. Based on our recommendations, NSF made a finding of research misconduct, issued a letter of reprimand, proposed to debar the former program officer for 18 months, required two years of certifications and assurances following the debarment, banned him from serving NSF in an advisory capacity, and required remedial training. NSF’s final decision on the debarment is pending.

PI Copies Substantially From an NSF Proposal Posted on His University’s Website

A PI from a Texas university submitted a proposal containing plagiarized text from several sources including significant text from a successful NSF CAREER proposal posted on the subject’s university grant office’s website. This source comprised nearly 30% of the subject’s project summary. We contacted the subject, who admitted having copied material in his proposal. He also informed us that another, pending NSF proposal contained many of the same citation problems, which we confirmed.

We referred the matter to the PI’s university. The university’s investigation committee concluded, based on a preponderance of the evidence, that the PI recklessly committed plagiarism, deemed a significant departure from accepted practices. The deciding official required the subject to: develop an educational document about plagiarism; not submit external grant proposals for one year; have a letter regarding the misconduct and completion of the educational document included in his personnel file; send an apology letter to the author of the source text from which the majority of material was plagiarized; and forgo a year’s merit salary.

We concurred with the university assessment. Based on our recommendations, NSF: made a finding of research misconduct against the subject; sent him a letter of reprimand; required certifications and assurances for two years; required certification of completion of the approved educational document about plagiarism; and required the subject complete a course on research ethics and plagiarism.

Assessing Allegations of Verbatim Plagiarism

NSF defines plagiarism as “the appropriation of another person’s ideas, processes, results or words without giving appropriate credit.”²⁷ In verbatim copying of text, we often look at “QCR” factors in assessing whether “appropriate credit” has been given. Those factors are: whether the copied text is quoted (Q); whether a citation (C) to the source appears in the text; and whether the citation directs the reader to a source listed in the document’s reference (R) bibliography.

- Quotation (Q): We look for authors to distinguish the work of others from their own by using quotation marks, block indentation, or some other customary and accepted manner of offsetting text.
- Citation (C): The citation is the key element that directs the reader to the author who wrote the source document. A citation can be indicated with parenthetical notation, footnotes, or endnotes, all with the purpose of linking the copied material to an entry in the reference bibliography.
- Reference (R): We look for the inclusion of the source document in the bibliography, with sufficient information to lead the reader to the original source.

The combination of all three factors—Quotation, Citation, and Reference: QCR—clearly and unequivocally provides appropriate credit to the original author(s) of the words, and effectively dispels an allegation of plagiarism.

Actions by NSF Management on Previously Reported Research Misconduct Reports of Investigation

In each of the following cases, the NSF Deputy Director made a finding of research misconduct and took administrative actions. Each of these cases was previously reported in our September 2008 Semiannual Report:

- **A graduate student subject committed verbatim plagiarism when he published a paper derived from his graduate research in an online journal and omitted any reference or acknowledgement to his U.S. advisor.** He also committed intellectual theft when he entered several gene sequences developed in his U.S. advisor’s laboratory into an online database, again omitting any reference to his U.S. advisor.²⁸ The subject gave credit to other individuals who had not participated in the research. Because the actions were so serious, and had a lasting, adverse effect on the U.S. advisor’s research and the relationship between collaborating scientists, we considered this to be one of the most egregious cases of research misconduct we have investigated. Consistent with our recommendations, NSF made a finding of research misconduct against the subject, sent him a letter of reprimand, and debarred him for 5 years.

²⁷ 45 C.F.R. § 689.1(a)(3).

²⁸ September 2008 Semiannual Report, pp.39-40.

- **A faculty member at a Michigan university unsuccessfully attempted to pass the blame for plagiarism in his NSF proposal to his students.**²⁹ Consistent with our recommendations, NSF: made a finding of research misconduct; required certification of completion of the remedial training imposed by the university; required certifications and assurances from the faculty member for 1 year; required the faculty member to provide for 1 year, with any proposal submitted, his plans for training his students and postdoctoral researchers in the responsible conduct of research; and barred him from serving NSF in an advisory capacity for 2 years.
- **A new faculty member at a Virginia institution plagiarized text into his first NSF proposal.**³⁰ The Deputy Director made a finding of research misconduct and imposed the following actions: issued a letter of reprimand; required the PI to provide certification and assurances for 2 years; and required completion of an ethics course.
- **A former professor in an Indiana university knowingly plagiarized from four sources into one proposal.**³¹ The PI subsequently left her academic position to work in the private sector. Based on our recommendations, NSF: made a finding of research misconduct against the subject and sent her a letter of reprimand; required certifications and assurances for one year; and required certification of attending an ethics class.
- **An associate professor at a Texas university plagiarized into seven separate NSF proposals, one of which was an awarded Small Grant for Exploratory Research (SGER) proposal.**³² Based on our recommendations, the Deputy Director: made a finding of research misconduct against the subject and sent him a letter of reprimand; debarred the subject for 2 years; required certifications and assurances for 2 years; barred the subject from serving as an NSF reviewer for 3 years; and required certification of attending an ethics class. The subject has appealed and the Director's decision is pending.
- **A senior faculty member at a New Jersey institution plagiarized text into his NSF proposal from a proposal that he received from NSF to review.**³³ Based on our recommendations, NSF: issued a letter of reprimand containing a finding of research misconduct; required completion of an ethics course; required certifications and assurances for one year; and barred the faculty member from serving NSF in an advisory capacity for two years.
- **A research scientist plagiarized in six SBIR proposals that she submitted over five years.**³⁴ Based on our recommendations, NSF: made a finding of research misconduct; required completion of an ethics course, required certifications and assurances for four years; and barred the scientist from serving NSF in an advisory capacity for four years.

²⁹ September 2008 Semiannual Report, p.42.

³⁰ September 2008 Semiannual Report, p.41.

³¹ September 2008 Semiannual Report, p.41.

³² September 2008 Semiannual Report, p.40.

³³ September 2008 Semiannual Report, p.42.

³⁴ September 2008 Semiannual Report, p.40.

- **A faculty member at a Pennsylvania university plagiarized text from multiple source documents into two NSF proposals, in addition to text plagiarized in three other proposals submitted to other agencies and funding organizations.**³⁵ Based on our recommendations, NSF: issued a letter of reprimand notifying the faculty member of the finding of research misconduct; required certification and assurances for 2 years; and required completion of an ethics course.

Research Misconduct Reports of Investigation Forwarded to NSF Management

PI Breaches Confidentiality, Then Alters Documents and Fabricates Story to Mask Plagiarism

An OIG investigation concluded that a PI from a northeastern institution plagiarized text, figures, and citations from multiples sources into four NSF proposals. One of the NSF proposals appeared to contained a substantial amount of copied material taken from an earlier NSF proposal (the source proposal) submitted by other researchers. During our inquiry, the PI asserted that colleagues at a private company gave her a copy of the source proposal for her to use as her own. Further, the PI provided copies of emails documenting the timing and receipt of this information, but did not provide any of the colleagues' names. We referred the investigation to the PI's institution.

The institution's investigation committee decided to focus solely on one proposal, about 80 percent of which appeared to have been copied from the source proposal. The PI provided the committee with the name of the part-time student who also worked at the private company, explaining that the student provided her with the copy of the source proposal. The student told the committee it was untrue, but the PI had asked him to state he had received the source proposal and provided it to her.

As a part of its investigation, the committee requested our assistance in determining whether the PI had merit-reviewed a DOE proposal. We learned from DOE that the PI reviewed another proposal very similar to the source proposal and submitted by the same authors. The committee concluded that the subject copied the text from the DOE proposal she reviewed and not the source proposal we originally identified. The committee, with the help of forensic investigators, also determined that the PI had altered dates on electronic documents she provided to OIG and the committee to support her story of receiving the source proposal at a later time from the student. The institution determined that the PI: breached the confidentiality of the DOE merit review process; and deliberately attempted to conceal the plagiarism in her proposal by fabricating a story, which she ultimately admitted doing. The institution determined that PI committed research misconduct, and accepted her resignation in lieu of termination.

³⁵ September 2008 Semiannual Report, p.41.

We concurred with the institution's conclusion concerning the plagiarism in the proposal. However, after further investigation, we determined that the PI copied text, figures, and citations into four NSF proposals, which represented a significant departure from accepted practices of the relevant research community. Further, with the first proposal, the PI's breach of the confidentiality of the merit review process, fabricated story (including electronic alteration of files), and involvement of an innocent part-time student in her fabricated story, made her actions extremely egregious. We recommended that NSF: inform the PI that NSF has made a finding of research misconduct; debar her from receiving federal funds for a period of 5 years; and bar her from serving as a merit reviewer for 5 years. NSF's adjudication on this matter is pending.

PI Inadequately Cites Text in a Third of His Proposal

An OIG investigation into an allegation that a PI and Co-PI from an institution in California submitted a proposal containing plagiarism, confirmed that the PI had plagiarized text but exonerated the Co-PI. Our analysis found extensive text, two figures, and three figure captions copied from numerous sources. We noted that embedded citations to many of the sources generally did precede or follow the allegedly copied text, but that the text was copied verbatim without quotation marks or other demarcation. Our investigation determined that the PI was solely responsible for the copied text and that fully one third of the proposal was copied from the multiple sources.

We concluded, by a preponderance of the evidence, that the PI knowingly committed plagiarism in one proposal, representing a significant departure from accepted practices. We recommended that NSF: make a finding of research misconduct against the PI; send the PI a letter of reprimand; require certifications and assurances from the PI for a period of three years; bar the subject from serving NSF as a reviewer, advisor, or consultant for one year; and require certification of attending an ethics class within one year. NSF's adjudication is pending.

PI Takes Responsibility for Copied Material

An Indiana university found that one of its PIs used plagiarized material in an NSF proposal. We received the allegation that a PI and two Co-PIs from the university submitted a proposal containing plagiarism. We contacted the PI and Co-PI, and each named the PI as solely responsible for the annotated text. In his response, the PI also identified a second document from which he copied text. OIG referred the matter to the PI's university.

The university's investigation committee concluded, based on a preponderance of the evidence, that the PI knowingly committed plagiarism, which constituted a significant departure from accepted practices. They also determined that there was a pattern of plagiarism, in that the subject's dissertation and a journal article also contained plagiarism. The university required the subject to: submit his work for 3 years to university officials for plagiarism review; complete a Responsible Conduct of Research course; notify the Research Integrity Officer at the university at which he wrote his dissertation and the journal editor of the article that both contained plagiarism; and be aware that any future misconduct will result in dismissal from his current employment.

We concurred with the university assessment, and recommended that NSF: make a finding of research misconduct; send the subject a letter of reprimand; require certifications and assurances from the subject for 2 years; and require certification of completion of a course in research ethics within a year. NSF's adjudication is pending.

Former Professor Plagiarizes in Three Proposals

We received an allegation that a former assistant professor at a Maryland university submitted an NSF proposal containing plagiarism. During our inquiry, we identified several source documents from which over two pages of text were allegedly copied into three NSF proposals. During the investigation, the subject argued that we should exclude three of the sources from our review, and we agreed. However we concluded that the subject knowingly plagiarized approximately two pages of text into three NSF proposals, deemed a significant departure from accepted practice.

We recommended that NSF: make a finding of research misconduct against the subject; send him a letter of reprimand; require certifications and assurances for 1 year; bar him from serving NSF as a reviewer, advisor, or consultant for 1 year; and require certification of attending an ethics class. NSF's adjudication is pending.

PI Includes No Citations in Two NSF Proposals

An OIG investigation concluded that a PI copied seven pages of text into two NSF proposals. It was initially alleged that the subject from a Pennsylvania institution copied approximately three pages of material from numerous sources into his two NSF proposals. When we contacted him, the subject did not contest he had copied text without adequate citation. However, he claimed he had attended an NSF workshop in which he was told he could copy material from documents and without citation, a ridiculous claim for which he offered no evidence. After reviewing the subject's response, we re-examined the proposals and found nine pages of additional copied text. We referred the matter to the subject's institution.

The university concluded, based on a preponderance of the evidence, that the subject knowingly and recklessly committed plagiarism, which constituted a significant departure from accepted practices. The university terminated the subject's employment. We initiated an investigation to verify whether some copied material was attributable to the subject's collaboration with another researcher. We determined the subject had co-authored some of the questioned text, which we then excluded from further review. We concluded the subject copied approximately seven pages of text into two NSF proposals.

We recommended that NSF: make a finding of research misconduct against the subject; send the subject a letter of reprimand; require certifications and assurances from the subject for three years; and require certification of attending an ethics class within one year. This matter is pending adjudication.

Other Significant Cases

University Adequately Addresses NSF Interests in Resolving Research Misconduct Allegations

We found that a university's resolution in a plagiarism case involving several professors and a graduate student adequately protected NSF and the federal government. Allegations arose against a graduate student and several NSF-funded professors, when the graduate student moved from one NSF-funded research group to another and continued to work on a similar research project. The allegations concerned the use of the first professor's ideas by the student and the professors in the second group. At about the same time, the first professor allegedly plagiarized from the student when he published a paper as a sole author in which he reused text he had previously published with the student as a co-author.

The university found no misconduct with respect to the student and the professors in the second group. However, the university found that the first professor had committed plagiarism by using the majority of the coauthored text in the subsequent publication because he omitted the student as an author. The university issued a letter of reprimand to the professor, imposed remedial training in ethics, required the professor to have senior faculty supervision of his mentorship of students, and required attestations to his department chair that the work he publishes does not contain plagiarized material.

We found that the university investigation was accurate, complete, and supported by the evidence and university policies. Although the professor's actions raised serious concerns for our office, the university's actions were adequate to protect NSF and the federal government. We did express our concerns to the professor regarding his questionable research practices, including the apparent duplicate publication.

Action by a Professor Averted Research Misconduct Finding

A Massachusetts university took a novel approach to resolve a research misconduct allegation against one of its faculty members. It was alleged that conclusions in two papers, written by the subject, were not substantiated by the data. Specifically, the subject was alleged to have not done enough to account for instrument artifacts that could account for the claimed results, and therefore the results were intentionally misreported.

The university's investigation committee found two significant problems with the conclusions reported in the papers. The papers failed to disclose the extent to which instrument artifacts can resemble valid research results. The papers' conclusions were not supported by sufficient statistical proof that the claimed results were not in fact the result of instrument artifacts. The committee asked a consultant in statistical methodologies to review the subject's approach, data, and conclusions.

The consultant concluded the subject's design and analysis of his experiment were not well developed from a statistical point of view, and thus, the subject's results should be considered preliminary and exploratory in nature. The committee determined that the consultant's findings raised doubts about the subject's conclusions.

The committee concluded that a preponderance of evidence showed there was insufficient statistical basis for the subject's conclusions in his papers, but the subject did not commit research misconduct because he did not recklessly or knowingly publish flawed results. It expressed concern that the two papers remain in the literature without any indication of the problems with the findings. It recommended that the subject develop a rigorous methodology for statistical reexamination of the data, consistent with the recommendations of the consultant. If the reexamination demonstrates one or both of the papers need supplementation, correction, or retraction, the subject should act accordingly. The committee concluded that if the subject fails to do so, he would at that point have committed an act of research misconduct under NSF policy, because he would then know his results are flawed, and therefore he would then have a culpable level of intent.

The subject completed the reexamination requested by the adjudicator and is preparing a new paper for publication; he also prepared a report for the adjudicator. His research was reviewed by his department chair, his departmental advisor, and the vice president, who concluded the subject's new analysis satisfied the committee's and consultant's criteria. The adjudicator accepted the subject's manuscript and report as satisfactory and closed the case.

Management Implication Reports

NSF's Transit Subsidy Program

OIG initiated an investigative review of NSF's transit subsidy program to check for the type of abuses cited by the Government Accountability Office in a 2007 report. The GAO investigation found that federal employees were fraudulently selling their transit subsidy benefits, and identified potential systemic weaknesses that allow employees to abuse the program. Although NSF was not a focus of the report, the agency was aware of it and quickly implemented several improvements it suggested. For example, the NSF transit program attempted to verify recipient travel costs by requesting employees to state the address they commute from, but could not reach agreement with the employee union bargaining unit regarding the issue.

We checked for potential overstatement of commuting costs by selecting subsidy recipients who lived in Arlington County (where NSF is located) and claimed more than their actual commuting cost over an 18-month period, based on our estimates. Our review identified five individuals who claimed and received an excessive amount of subsidies. These recipients used the extra amount for personal transportation costs and for local trips on official business. Despite receiving information about the proper use of the benefits when they applied to the program, the recipients said they did not know they were not supposed to use their transit benefits for official travel, nor did they know they could adjust the amount they put on their SmarTrip card at the Metro station to take less than

the claimed benefit when circumstances warranted it (e.g., vacations). Several recipients said they did not know their commuting cost, and asked the program staff to calculate it for them.

We recommended several changes to help NSF improve its management and prevent potential abuse of the program. We also recommended that NSF take appropriate action against the individuals found to have received excessive subsidies, and require them to recertify to the correct amount of their commute and reduce their benefit accordingly.

Improving NSF's Management of Reviewer's Conflicts of Interests

As noted previously,³⁶ OIG recommended that NSF take several steps to improve the information both the agency and reviewers exchange regarding potential conflicts of interests (COIs). However, NSF informed us that it would not implement any of our recommended changes for improving the way it handles its reviewer COIs because it does not perceive any systemic deficiencies affecting the current review process. Accordingly, we provided an expanded explanation of the reasons for our recommendations, which focused on ensuring that reviewers were apprised of situations that could be construed as COIs and had ample opportunity to disclose potential conflicts to NSF. Since *ad hoc* reviewers³⁷ do not receive information about COIs and sign the form that panel reviewers do, we believe it would be helpful to provide them this same information and ask them to check a box affirmatively indicating they do not have a COI that would prevent them from performing their review duties objectively. Improving this information and disclosure process can enhance NSF's merit review system by ensuring its objectivity.

We also noted that our recommendations are consistent with NIH's longtime practices. NSF and NIH both ask the research community to review tens of thousands of basic research proposals each year, and probably rely on a substantially overlapping pool of reviewers. Thus, it is likely that there are many NSF reviewers already familiar with COI processes embodied in the recommendations we are making. NSF and NIH have the same interest in ensuring their reviewers understand what constitutes a potential COI, and the same interest in having those COIs disclosed to the program officials. NIH already does all of the things we recommend that NSF do, and these are tried and proven practices that we believe would serve NSF well in avoiding potential COI problems with reviewers.

In our view, NSF's commitment to the training and education of not only its staff, but also the support it provides to the community it serves, should not be premised on whether there is a legal requirement to do so. There is currently a dearth of COI training resources available for reviewers, apart from the standard COI briefing provided only to panel reviewers, which NSF can, and we believe should, rectify.

NSF is reevaluating our recommendations and informed us it has sought the advice of the Office of Government Ethics (OGE) regarding our recommended revisions to the certification form the panelists receive that contains guidance about COIs. To facilitate OGE's assessment, we provided OGE with our review and supplemental information.

³⁶ September 2008 Semiannual Report, p.34.

³⁷ "Ad hoc" reviewers provide their reviews solely electronically.

Meaningful Laboratory Records

Our investigations into allegations of fabrication and falsification invariably involve an examination of laboratory records, including notebooks, instrument logs, and instrumental measurements stored in electronic form. The quality and completeness of these records in university laboratories varies widely from lab to lab. In one recent case, a post-doctoral researcher kept voluminous laboratory records at one institution, and sparse and incomplete records at his next institution, reflecting the different emphases of the faculty member in charge. Even in cases in which an individual's laboratory notebook appears adequate, linkages to instrument records and electronic data stored on various computer systems are often incomplete.

Within investigations into allegations of research misconduct, we typically assess the usefulness of laboratory notebooks and records by considering the following:

Completeness: The record should describe all the activities of the researcher, not just the "successful" ones.

Linkage: A written laboratory notebook should reference electronic records by name and location in detail sufficient to locate the electronic records.

Review: A regular (weekly or monthly) documented review of laboratory notebooks by a supervisor or a faculty advisor can help ensure the quality of laboratory records.

Accuracy: Records should be a contemporaneous chronology of all pertinent laboratory activity and results, whether successful or not, and be sufficient to support the reconstruction of activities by another competent researcher.

Safekeeping: All laboratory records should be maintained in a secure manner and backed up with copies stored in an alternate location.

In several recent cases, the ownership of data and laboratory records has been questioned. For research sponsored by NSF, ownership resides with the grantee, which is usually a university. Copies of records may be made for faculty and students that leave the university, but the grantee is required to maintain the original records for three years after the close of the award.

